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POTENTIALITY, PROPERTY, AND ACCIDENT[1]

I. The Object in Relations

WHAT A THING would be in isolation we do not know. We do not know the thing "in itself," if by these words we mean the thing as an absolute, standing in self-sufficient isolation. Obviously we can know it only in an epistemological relation, with whatever increments or distortions this might involve. But if this fact appears trivial, it is not less obvious that within this epistemological relation we invariably find that the object stands in relation to still other objects. Without the epistemological relation, the object does not come under discussion; and if that were the only relation in which it stood, discussion would still be impossible, because we could say nothing about the object. There is a certain linguistic wisdom in the words "knowledge about," for in every judgment we explicitly associate an object with other objects *about* it by way of comparison, discrimination, inference, location, and the like.

Given along with any object, so intimately together with it that we cannot say where the object ends and its relations begin, there are unitary states of affairs whose internal structure consists in these relations. The specific relationships pertaining to an object characterize it. A complex object is a consistent set of such relationships, actual and possible, all with a common substratum or point of insertion into a particular. States of affairs, however, do not consist of things and relations as though they were two discrete parts which constitute a whole when together but which can very well exist apart; relation is merely the mode of togetherness of things. Things independent of relations, and relations independent of objects, are not the

[1] This article is an expanded and revised version of a paper read to the Fullerton Club at Bryn Mawr College on March 9, 1946.

prior ingredients of states of affairs. Relations may be abstracted from things in their actual or logical togetherness and thereby constitute abstract formal or geometrical or temporal patterns which leave the things indefinite and irrelevant to one another. Similarly, the object as it is "in itself" is the residue of this abstractive process; it is not the object in its most real moment, but in its least specific and actual form. For our knowledge, it is a surd. This dismemberment of concrete constellations of experience is, in diverse ways, the work both of analytical intelligence, which is able to separate what occurs together, and of ignorance, which fails to see, except in obvious cases, what does belong together.

But though objects are always given in relationship, it is desirable to determine, so far as we can, the separate role of each object in a given relation. By regressing from relationships in which we find objects, we may approach at least asymptotically to the unrelated object. In order to determine the specific properties of a relationship, we abstract from the histrionic status of the objects as we find them in relations, and we try to ascertain what features of the relationship can be credited to the various relata and whether any can be ascribed to their specific mode of togetherness. In this way we can learn the minimal character of all relata, the invariant structures of actual relations, the specific contribution of each relatum, and the emergent properties of the complex relationship.

One invariant in all relations is the difference between the relata. An object, in order to stand in a relation, must be other than the object to which it is related. Identity is not a relation. Identity appears to be a relation because we can refer to an identical thing in different parts of a proposition and then, by means of the copula, "identify" two logically identical, but materially distinct, symbols with each other. Identity can appear to be a relation only because of an actual material difference between the relata, as when we write, "*a* is *a*," we have to write two different *a*'s and then assert that, in meaning, they are the same. Difference, however, is not just the obverse of this syntactic relation between different instances of a symbol. It is in a different dimension. "To be" presupposes "to be different."[2] There is

[2] For this succinct formulation, I am indebted to the as yet unpublished manuscripts of Dr. William Hester, of Duke University. Cf. also his "A Note on Existence," *Philosophy and Phenomenological Research*, II (1941), 101–103.

not any relation except between discriminable entities, and there is no being except in relation to other beings.

To assert a difference, of course, is to express a relation. The relation of difference, however, is a minimum relation, presupposing no others but being presupposed by all others. Furthermore, it is different from all other relations in one radical respect. While any specific relation holds only between objects constituted in certain specific ways, this relation is wholly independent of the character the objects have, or of any change they might undergo, or of any variation we might arbitrarily introduce into them by definition or manipulation. It is thus a limiting relation in our regression.

At the same time, mere difference is the limiting character of the subject divorced from its specific relational contexts. In our regression from objects-in-relations toward the object "in itself," we end with a set of merely distinguishable entities. We cannot say what any of them is without appealing to the relations from which we have just looked away. The features of the object, by virtue of which we found it in some specific relations but not in others, are no longer explicit properties. We ordinarily distinguish among objects by reciting their different relations and the properties contingent upon them, e. g., "larger than," "like," "heavy." These marks of distinction have been sacrificed in our regression. Nevertheless, the objects are still different from one another, even though we, no longer equipped with relations, would be unable to discriminate among them. They are not merely numerically distinct — though to be sure we could not count them — because they show positive individuality in that any one of them has been found in some specific relations but not in others. The only thing we know about them is that each is different from all the others. But they are different in different ways and specifically different in their openness to specific relations. In Whitehead's words, each has "an indeterminat[e]ness which is it[s] patience for external relations."[3] This kernel of difference, which cannot be identified but must be presupposed, I will call the "potential nature" of the object.[4]

[3] *Science and the Modern World* (New York, 1926), p. 230.

[4] Potential is not meant in a temporal sense, as in Aristotle (*Meta.* Δ 12). (Cf. C. E. Whitmore, "The Paradox of Potentiality," *Journal of Philosophy*, XXXVI [1939], 239–247.) Since things are not first given in isolation and subsequently enter relationships, no temporal sense can be given to the difference between the related and the unrelated entity, except where a related entity enters

The object, therefore, even when considered in an imagined though unattainable isolation, is not a bare other. How it differs from other objects determines what relations it will enter, and thus what properties it will have as a consequence of entering relations. We have reached asymptotically toward the potential nature of the thing by a kind of motivated ignorance, for when we know something we know it as actualized in relations, with its properties actual and definite. Now to recover what we have lost in this regression — it is we who have lost, not the object, for it cannot be taken out of its relations even though we can go far in imaginatively or ignorantly disregarding them — let us relax our self-imposed ignorance and see the properties of the object evolve, before our consciousness, as its potential nature is progressively manifested in the relations we have blacked out.

By seeing the objects in their relation to others, we first find similarities and *specific* differences among them. We form classes of objects. We find that an object is in the class we call "physical objects," for instance, if its potential nature fits it into mass-relations which afford it the property of "mass." Furthermore, we find the object in asymmetrical relations, and we say, "This object is larger than that." The relation does not make it so; the potential natures of the two objects in question determine where each will fit into the relationship whose structure is independent of these particular objects. Finally, we may agree on some constants for asymmetrical and transitive relations, such as units of size and mass, and then the relation permits us to specify the potential nature still further and to say of a given object, "It weighs five pounds and is two feet long."

Thus do relational contexts qualify objects. The specific character

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still another relation. Potential nature as a concept resembles Aristotle's material cause, which is potentially various specific things. By potential nature I mean here much of what I believe to be involved in Ushenko's term "a set-up of dispositions" (Andrew Ushenko, "A Theory of Perception," *ibid.*, XXXVII [1940], 141–152) and in Weiss's "privacy of the individual" (Paul Weiss, *Reality*, [Princeton, 1938], Bk. II, chs. i, ii). Weiss says: "The privacy of the individual is the being of all its relational characters as absolutized and inseparably one, shorn of those features which accrued to it through the fact that the individual was part of a wider world." "It is a privacy capable of multiple public forms which arise due to the nature of the relations which intervene between it and the rest of the universe." "The public magnitude of actualities is the relativized version of the inward size and shape of an actual individual" (pp. 179, 181, 184).

an object has by virtue of its position in a relation I will call a "relational property." (Though all actual properties are relational, it is well, even at the cost of a pleonasm, to use this term to indicate the categorial distinction between property and potential nature. An actual property which would be invariant in all relations, and therefore independent of relation, would be an ingredient of potential nature. The status of such a property, if one exists, will be discussed later. Where a property *seems* to be independent and invariant in this way, we find that we are dealing with an illusion of some kind [an *idée fixe,* as it were], since one characteristic of an existing thing is the uniform way in which it varies from context to context instead of exhibiting a static indifference to circumstances. Relativity in science, and contextualistic or perspectival theories in metaphysics, are but elaborations of this fact.)

II. The Concept of Potential Nature Examined

The concept of potential nature was formulated in order to express the limits of variability and substitutability of relational properties, and it signalizes the fact that relations do not have absolute sovereignty over the object. They only elicit, in actual form, what would be potentially an object or property of an object if the thing could stand alone. It is a necessary concept for the following reasons:

(1) The relation does not have complete dominance over the object as found. It is only one of the determinants of relational property, for objects are not replaceable at will in specific relations. There is a kind of natural openness to some specific relations and closedness to others.

(2) If there is no potential nature, the object is resolved into relations, and the relations have no termini. The object, if it is only what it is in relations, is merely an "elongation" of the relation, and the world becomes a web of no things. Knowledge tends in the direction of such a conception of the world, as in mathematical physics and in field-theory in other departments of science, but, as in Kant, the fact that the *concept* of a thing in itself (the x) is a *Grenzbegriff* does not imply that the thing is a *Grenzbegriff*.

(3) If the object were only an elongation of a relation, there would be no common point of insertion of relations. Then we could not say,

as we actually do, that one thing stands in several relations. There would be no persistence of the object through changing relationships. Thereby change itself would be impossible, impossible even as an illusion. A single thing would have only a single property; strictly speaking, "it" would not "have" any property but would simply *be* the property. Needless to say, the concept of property itself would be meaningless.

For these reasons, the potential nature of a thing cannot be merely an abstraction from its actual nature, even though we have reached it only by a process of abstraction. The being of a thing is ontologically prior to its complete actuality as this is realized in relations. Though it is impossible to make specific judgments about the potential nature without presupposing relations and thus failing in our purpose, it is at the same time impossible to regard relation as the ontologically prior concept and to regard being as an abstraction from it, even though for thought the categories seem to be arranged in this way.

The concept of potential nature is meant only to indicate the minimal fact about existence, viz., that the differences things show in relations are at least in part derivative from the differences they have among themselves. Without an acknowledgment of this fact, the entire question of transcendent meaning and truth and even of existence itself loses all significance. All that is meant by the concept of potential nature is that there is an internal root for the external and public characters of things.

The concept of potential nature, though inescapable, is not without difficulty. The principal difficulty is this: if the potential nature is utterly different from the object as we know it in relations, the thing becomes in principle unknowable and unimaginable, uniquely different from all we know, and therefore we cannot make use of it in accounting for the properties we do know; or, it has specific properties implicitly which it can show only in relations, and therefore the concept of potential nature does not provide a ground for explaining the diversity of quality that an object exhibits when it stands in various relations. In either case, the concept appears to be useless; it seems to stand either for something so different from property that it cannot found any property, or for something which merely duplicates in a thing the properties it has in relations and is thus incapable of pro-

viding for the diverse and even incompatible properties we find in things in diverse or incompatible relationships.

Instead of this dilemma, however, there are actually four alternatives that must be discussed.

(1) No property whatsoever is to be attributed to the potential nature. We can say that the object is potentially heavy, for instance, and mean that given the proper relations to other objects it will show this property. But we cannot ascribe this property as a specific potentiality to the nature of the object without admitting that, while the law of contradiction applies to actual properties, it does not apply to potential properties. Where the law of contradiction does not apply, however, it seems to me to be safe to assume that the terms in contradiction are not meaningful. The explicit properties an object can have in separate relations may be contradictory if the relations, and pre-eminently that of temporal difference, are not stated. The relations cannot be stated for the potential nature, however. But neither does the law of excluded middle hold of the properties as they are attributed to the potential nature; the object has neither the property *x* nor *non-x*, but a single potentiality for both *x* and *non-x*, a necessary condition for either lying outside the potential nature. Thus the potential nature seems to be inherently vague, not just vague for our conceptions.

(2) The object has only a generic property potentially, e. g., massiness, and the relation specifies it to a particular property. This is true in the sense that if the object has mass, it may be ascribed different specific quanta of mass in different metric systems. But the reverse is also true, viz., the relation may simply require the quality of mass, while it is the specific nature of the object that determines what mass it will have, once the constants of the system are established. The latter is the more plausible in the light of the respective contributions of the potential nature and of the relations, as described in our account of the progression from potential nature to relational property. In either case, the quality is unspecific in unspecific relational systems, and specific in specific ones. If we assume that the object potentially has generic mass, it must also have that potential quantum of mass which fits it into one position in any particular system of mass-relations. This alternative then reduces to the next.

(3) This alternative is: A specific property properly characterizing an object belongs to it potentially, but only some relations realize this property; others do not bring out the true nature of the object, and whatever properties they elicit are arbitrary. For instance, an object is potentially circular; but it will present a circular projection only in a plane parallel to it. Other projections are not revelatory of the true nature of the object.[5] This possibility has at least one, and perhaps both, of the following serious disadvantages: (a) there is nothing in a particular relational property to indicate that it is "really" a property of the object so that we could decide what are "proper" and what are "improper" relational systems;[6] and/or (b) it does not credit the object with the potentiality of manifesting the variant properties in the manifold of "improper" relations. Yet objects differ in characteristic ways from system to system, and "proper" has a meaning only operationally, as, for instance, when we say the "true color" of an object is the color it has in white light, or the "true shape" is the shape of its projection in a parallel plane.

(4) An object has potentially every property which it can exhibit in any relation it can enter, and none of these is manifest except in the specific relations where each does actually and as a matter of fact appear. This is, of course, true in a grammatical sense, as potentiality is a presupposition of futurity; if an object were not potentially blue

[5] This alternative is, I believe, the one adopted by Weiss. He says, "The color is part of a public setting, organically connected with whatever other features there may be, but possessed of a component which is that very color as an inseparable part of . . . the independent, private, unduplicatable individual" (*op. cit.*, p. 174).

[6] Weiss distinguishes between the normal and abnormal conditions of contemplation and shows how a quality perceived under abnormal conditions can symbolize the "standard quality." A real quality is accurately expressed in all relations, so that we might say that a *real* red is really visibly blue in some circumstances. In his words, "If 'red' clearly symbolizes 'blue,' the difference between the conditions of present and normal perception expresses the difference between a standard 'red' and a standard 'blue,' thus allowing of the definition of a standard 'blue' in terms of a present abnormally occurring 'red' and conversely" (*op. cit.*, p. 52). He defines "normal conditions" operationally. However important normal conditions are for us, who wish to convert "abnormal" to "standard" qualities, I cannot see that it is legitimate to attribute the latter in any way to the object per se that is not also legitimate for the former. Yet it seems to me that if "standard" color were not simply a convention, it would have to be held to be revelatory of the private nature while color under abnormal conditions would be only indirectly related to the object via its symbolization of normal color.

in white light and black in red light, it simply could not appear red and black in different lights — this is not a metaphysical proposition but an example of what is meant by the usage of the word *potential* in everyday life. Ordinarily, such potentiality is a condition of futurity whereby we do not have to have a new name for a thing whenever a property of it changes. But neglecting this grammatical truism, we cannot say the object *is* blue and black without having recourse to the term *potentially,* and when we reify potentiality as specific, we are, in this fourth alternative, attributing to the potential nature of an object a constellation of properties we cannot attribute to its actuality in relations, for actual properties are in every case exclusive of their contraries. We are, in fact, in this alternative exempting the object from the law of contradiction and at the same time saving the descriptive terms to which this law should apply.

Of the four alternatives, the first has come out rather better than the others in the face of what I have tried to make, and believe to be, honest and impartial criticism. The object outside relations does not seem, in the light of these arguments, to possess a generic nature or property, a variety of specific properties, or a single preferred specific property. Each of the last three alternatives in using the concept of property presupposes relations, and only confusion results if property is imputed to that which by definition is nonrelational.

The object as it is in itself is in principle unknowable and ontologically unique.[7] In reaching backward toward this ontological *prius,*

[7] Weiss, on the other hand, permits an internal knowledge of the individual, as when I know indisputably that I am an individual. He says, "The individual . . . is not an unknowable lurking behind the scene, unapproachable by any means whatsoever, for then it could not even be acknowledged as so completely beyond one's ken. It is not a thing-in-itself, to be taken as cut off from all that could be known or from all reference to the other individuals in the universe. Nor can it be viewed as the inverse of its external manifestation. . . . It must be recognized to be continuous with the very characters which are relativized — the absolute inwardness of whatever is publicly or discursively known of it" (*op. cit.,* pp. 178–179). But such knowledge for other individuals can be only analogical and speculative. In the limiting case of the generalized concept of entity, such knowledge is impossible or at most negative. It is quite true that we can have the fuller and more convincing knowledge Weiss describes in the knowing individual, and what it suffers from the perspectival dangers of propinquity it more than makes up for in its greater depth and inwardness. These advantages have been indicated, as against Kant, by Schopenhauer and, most eloquently, by Bergson, but each of these philosophers predicated his vision upon a particular substance. Our problem here, however, is simply to inquire into the necessary condition of *any* being, so long as it is specific.

we have left behind the relations on which property is founded, and which judgment can mediate. We have no language to describe this entity, no concept which applies to it except a limiting and intensionally empty one. That does not imply, however, that the entity itself, though a limit, is empty; that it has a potentiality of being specifically different from other entities when they enter relations is sufficient guarantee of that. It is distinct from other entities not merely numerically and not at all qualitatively; its difference lies in distinct potentialities, differently expressed in different relations, and different from the potentialities of other potential natures. We cannot appeal to this nature to explain the specificity of those properties which emerge from it in relation. In that sense, perhaps, we should say it is useless in explanation. But on the other hand, the concept of potential nature has a regulative function in indicating that the sufficient conditions of relationships do not lie wholly within the relation (as if relation without relata could obtain) but also in the relata. It cannot be insisted too often, however, that the concept of potential nature does not stand for a property of a thing or for a constellation of properties independent of relationships and prior to them; the concept denotes only the nonrelational existential condition of existing relationships.

It is no valid objection to the potential nature to say that it is as useless as Kant's thing in itself, for that served a useful and indeed indispensable purpose in the critical philosophy, and the critical philosophy (in the strict sense of the word) remained critical (in the broad sense) only so long as it kept the thing in itself. The role of the thing in itself was to provide a real ground for the distinction between a priori and a posteriori knowledge. Without the thing in itself, all knowledge would perforce be mind-generated, and the distinction of the two modes of knowledge would be at least in principle sublated (in the manner of Leibniz). It is for this reason that Nicolai Hartmann has said that the thing in itself is the most truly critical concept in Kant's philosophy.[8]

Our problem at the moment is broader than Kant's, since we are concerned with the general ontology of things and relations, instead of with the epistemological relation and its objects; but there is an

[8] "Diesseits von Idealismus und Realismus," *Kantstudien*, XXIX (1923), 195.

analogy between the contribution of the thing in itself to the one and of the potential nature to the other. Both keep the objects of which our world of experience consists from being airy nothings.

III. Relational Properties and Accidents

There are two broad classes of relational properties. A relational property is either (1) a specification by a relation of the potential nature of an object, or (2) that which is required by the relationship itself irrespective of any potential nature the object may have. A property of the second type is defined exclusively and adequately by the relational system and has its necessary and sufficient conditions within the system of relations. It may, of course, also be a specification of the potential nature and thus be a property of type (1). Properties of type (1) flow from the specification of potential nature by the relational system and find in the system only one of their necessary conditions. Such properties will be called "real properties" or "qualities." Relational properties of type (2) we shall call "systemic properties."

Real properties do not pertain to objects in a null or empty class, but systemic properties are not restricted to supposititious entities of an empty class. For this reason only is it possible for a real object to have systemic properties, and in some cases the same property may be both real and systemic. We will not be concerned, in the remainder of this paper, with properties which are both real and systemic except in the special case of accidental properties, to be described later; but properties of this kind are of central importance in the epistemology of a priori knowledge.

We may illustrate the two types as follows. "The present heir apparent to the British throne is not a Roman Catholic" is not an explicit formulation of the potential nature of the heir apparent, inasmuch as there is at present no heir apparent to have a potential nature. The proposition is true, and the systemic property obtains, only within the relational system of the English constitution. But "The President of the United States is not a Roman Catholic" is not this kind of proposition, for the property is not required by the relations giving meaning to the subject. (The proposition, "The President of the

United States is over thirty-five years of age," expresses a property of both types.)

Real properties or qualities are likewise of two kinds. There are (a) properties an object must have to participate in a given set of relations, and (b) the properties which are elicited from the potential nature by another set of relations and which are therefore irrelevant to the properties of type (a). The question of their relative significance does not arise here, since we have seen, in the preceding section, that there is no pre-eminently "proper" quality and hence no preferred relation or relational property. We may therefore regard it as arbitrary which specific property we include under (a) and which under (b), but methodologically the distinction is important and, in many cases, difficult. In any actual case, properties of the two kinds are distinguishable because we normally approach the object in one of its various possible relational contexts. In any specific case of diverse qualities, we will call (a) the "essential" property and (b) the "accidental" property, remembering always that, with a shift in perspective, the terms would have to be transposed. Thus it is an essential property of the President to be over thirty-five years old, while it is an accidental property that he is a Baptist.

Now it is an important fact that a relatum which has no actual designatum also has no real property. All its properties are systemic, and it is important to note that in any case such an object has only those properties required of it by the relation in question. These facts throw light on two important principles in logic and methodology. (i) A universal proposition does not imply its subaltern. The universal can be true even though the subject denotes an empty class. The particular proposition, moreover, leaves open the truth-value of its subcontrary. This would not be the case if existence were a systemic property, since all the objects denoted by the subject term would then be identical within the system. Not only are all existential propositions particular, except in the case where we have knowledge of an entire class, but also all particular affirmative propositions, if true, must be existential. (ii) The principle of parsimony is illuminated by the fact that a supposititious object in an empty class has only systemic properties. A term t in system m can be ascribed characteristics incumbent upon it in n only if (α) m and n can be shown to be regions

or subsets of a metasystem M, or if (β) t in m and t' in n can be shown to be particular cases of T which has extrasystemic existence and m and n can be shown to be compossible with respect to T. Alternative (β) is, however, impossible under the hypothesis of an empty or null class, and (α) is an example of the law of parsimony.

An object must have an extrasystemic being in order to possess a real property. But there is another important peculiarity of a real object, namely, its possession of an accident. No single relational system can exhaust the potentialities of a real object; there are always potentialities of the object which exceed the relational requirements. Everything that has existence — whose being is ontologically prior to relation rather than derivative from it — has some accidental property. Or better, it will appear to us to have an accidental property so long as we are not in possession of an all-inclusive set of relationships which will so integrate knowledge that there are no longer distinct and heterogeneous sets of relations. This means that, for the only stage of knowledge to which man can aspire, everything existent has accidents.[9]

IV. Accidental and Systemic Indications of Existence

Accidence is at least a negative criterion of existence, for distinguishing between a being as derivative from relation and a being as the condition of specific relations. For instance, if an object has only those characteristics required by the relational system in question, such as the Protestantism of the heir apparent, such a property is no evidence of existence, even though the proposition be true. If, in addition, we could truthfully say, "The heir apparent has blue eyes," then the accident asserted could flow only from the potential nature, and we could know that he exists.

[9] It must be remembered that accidence is an epistemological or methodological concept, not a concept of metaphysics. For the kind of knowledge Leibniz attributed to the supreme monad ("metaphysics in fact," we might call it), the distinction between essence and accidence would disappear. (Leibniz states the same thought when he says that such knowledge would be entirely analytical in form.) Since I wrote this paper, Harry T. Costello has discussed some of the same questions in "Logic and Reality," *Journal of Philosophy*, XLIII (1946), 169–190. Especially relevant at this point is his statement, with which I am in complete agreement, that the "really existent" thing has membership in more than one system and "internal resources in the way of potentialities, of surprise to those who think they know it best" (p. 173).

The ontological argument fails, in its classical form, because in attempting to make existence a property, indeed an essential property, it is unable to distinguish between relational and extrasystemic existence. But the object, so far as it is defined, is the same whether it exists or not. This we can see in Kant's figure of the hundred dollars and in the dilemma he proposes: if existence is an analytical (systemic) property, there is no contradiction in not thinking the object at all, since both subject and predicate may be sublated (i.e., since the system itself is not necessary, though necessity may be contained in it); and if it is a synthetical (real) property, there is no contradiction in denying it, since the concept is complete without the property (i.e., since the system is self-contained). Therefore the system, however structured with its internally defined properties, is at most a negative condition of being.

On the other hand, it does not follow that the possession of an accident is a sufficient condition for the assertion of existence. Note that we said, "If we could *truthfully* say. . . ." Sensory illusions have properties which are not determined exclusively by either the phenomenal system, a real extrasystemic epistemological object, or by physiological and physical factors. To be sure, if we possessed a complete knowledge of the psychophysical system which engenders phantasms we would undoubtedly be able to predict, intrasystemically, all the observed properties without recourse to anything outside that system. But what is important epistemologically is that we do not possess this knowledge, i.e., that the logical system we possess for explanatory purposes is not isomorphous with the real system of the relations we have to assume, and that we are thus in need of a criterion of existence which is not predicated upon perfect knowledge.

We can at most say, then, that the lack of an accident where an accident would be expected is presumptive evidence against an assertion of existence. Similarly for the systemic condition; it likewise is a negative condition when taken alone. If the logical system we use as a criterion is regarded as a static conventional setup, it is, of course, not even a negative criterion, since the system itself must be checked by the "facts."[10] A corrigible and growing system, or better, the sys-

[10] I have discussed the methodological limits of systems as criteria in "The Principle of Parsimony in Empirical Science," *Journal of Philosophy*, XL (1943), 617–633. Cf. also Felix Kaufmann's concept of "preference rules of

tematic principle itself is, however, a criterion, for in problematic situations we exchange one system for another without dispensing with the systematic condition.

We do not possess, with our partial knowledge, a knowledge of all systems which function with respect to any being. There are, undoubtedly, more things in heaven and earth than are dreamt of in known systems. They are important with respect to the dynamics of systems, for it is the lack of fit (the source of problems) between our systems and the potential natures that leads beyond a given relational set to a region of a larger and more comprehensive system. But the fit must be imperfect in the sense of the system's being too small, not in the sense that the system makes abstract demands the object cannot fill.

When the entity does fit into a system so that it meets the relational prerequisites of specific being, the question still remains, is x merely a term in the system, or is it the name of an object X beyond the system? In the calculations of Adams and Leverrier, Neptune was only a name given to a systematic explanation of the perturbations of the other planets so far as this explanation required a mass-point x. When Neptune appeared before the telescope, however, it did not do so simply as a mass-point but as a luminous body with a certain size, shape, and color. These were qualities not inconsistent with, but not called for by, the relational system of the calculation; but as astronomical accidents they were evidence that Neptune was not simply a construct within the system.

The possibility is not thereby excluded, though, that in the discovery of accidents we may exchange a hypothetical entity for an illusion and be not a bit better off. Only the specific nature of the accidents discovered can give presumptive evidence to the reality of the ostensible object. The nature of the accidents serves as a further, but still incomplete, criterion. Compare with our example of Neptune the following absurdity: "Mr. Jones, in his delirium, saw a bat, 'a placental mammal with forelimbs modified to form wings' (Webster), and the bat said, 'Hello!' to him. Now if the bat had not said, 'Hello!' to him, Mr. Jones would have known that he was delirious;

procedure" in "The Structure of Science," *ibid.*, XXXVIII (1941), 281–293 and in "The Logical Rules of Scientific Procedure," *Philosophy and Phenomenological Research*, II (1942), 457–471.

but this accident convinced him that he was not."[11] Assume that the ability to talk were a part of the definition. Then not the supposed fact that the bat talked, but that it said "Hello!" (instead of something else it might have said) would have been accidental. Then it would be a manifestation of potential nature not required by the system and would be as good evidence of the bat's existence as the visible form of Neptune was of its existence. Why, then, does one accident patently not indicate existence, while another does?

It might be suggested that where the ascription of accidence is permissible, the accidental property is more specific than is required by the system, so that the systematic position is too small for the total potential nature, or better, not sufficiently articulated. Where the inference to existence is absurd, the accident is totally irrelevant to the properties rightly ascribed to both existent and nonexistent bats.

Still, it is clear that the same specification of accidents can occur in an illusory as well as in a valid system of epistemological references. In the former cases as in the latter, there will be extrasystemic determinants. But their locus and epistemological status will be different in the two cases, and in an isolated example we will not be able to tell whether the thing is functioning as one pole in an epistemological relation or as one condition in a psychophysical complex. Only in the former case could we assert that accidents indicate the existence of the thing which seems to possess the accident. In the latter case, we can say only that there is *something* outside the system as a determinant. So much is clear, but what we want to know is, which case are we dealing with at any one moment? This we cannot tell in an isolated case. Only a system can tell us this.

Therefore we must conclude that an accident can serve as a negative criterion only if we fall back on our original proviso, viz., "If we could *truthfully* say. . . . " This must appear to be question-begging, unless we find that there are criteria of ascriptions of real properties and accidents that are distinct from, though perhaps isomorphous with, the criteria of ascription of existence. These would be primarily criteria of contingent and necessary properties, criteria for distinguishing merely defined from found entities. Accordingly, Bridgman

[11] This *exemplum crucis* for the theory that accident is a criterion of existence was suggested to me by Paul Weiss.

has written, "We have a right to ascribe physical reality to [a construct] because it is uniquely connected with other physical phenomena, *independent of those which entered its definition.*" This, he says, "amounts to nothing more than a definition of what we mean by the reality of things not given directly by experience."[12] Yet in the more advanced fields of science, where constructs with a supposed extrasystemic existence are defined only as systematic elaborations of data, it is often very difficult to decide when an entity is merely a construct, and when it is something more. The difficulty is increased by the use of complex instruments which must be indirectly calibrated, and which may sometimes turn out results actually significant only of their own working and not of the material they work on.[13] Both in mechanical and logical ways, therefore, a circularity in hypothecation may actually appear to indicate existence by the principle of convergence of evidence. For instance, it is a debatable question whether Eddington's "cosmic number," which showed up in so many of his calculations, is merely an indication of internal consistency or whether, by the convergence of evidence, it has any extrasystemic significance.[14] Only an elaborate mathematical analysis of his work, which I am not competent to undertake, can show which it is. But it is clear, even to a beginner, what some of the questions are which would have to be answered. For instance, do the prima facie different routes of determination have common quantitative presuppositions which will give the cosmic number by intrasystemic transformations? Are there operational or instrumental concepts and constants which will effect identical results on different routes of approximation? These

[12] *The Logic of Modern Physics* (New York, 1927), p. 27. Italics in original.

[13] One illustration of the danger must suffice. In Hugo Dingler's *Die Methode der Physik* (Munich, 1938), there is a chapter entitled "Proof of the Exclusive Validity of So-Called Classical Physics" (pp. 220–237). The so-called proof is as follows: measurement depends on both the phenomenon and the apparatus. Only the latter provides apriority and reproducibility (within the limits of accuracy). The apparatus is always constructed on the basis of manipulative *Grundfähigkeiten* predicated upon Euclidean constructs, especially the plane. The results of measurements can always be systematized in a Euclidean geometry; to systematize them in any other geometry is a failure to accomplish the *innenbestimmte Einfachstheit* necessary to the unambiguous control of nature. Therefore the use of macroscopic apparatus implies a Euclidean universe.

[14] Eddington was able to avoid the issue by believing that the truths of physics can be derived "from the system of thought by which the human mind interprets to itself the content of its sensory experience" (quoted in an obituary notice in *Nature*, December 16, 1944).

are not questions of existence; they are not even questions of truth, but questions of property. Yet an answer to them is of utmost significance to the question of existence.

Again, our proviso would be question-begging if the judgment of accidence were the only criterion in existential judgments. As we have seen, the possession of accidents, but not a specific accident, is an intelligible trait of existing things when they are considered systematically from the standpoint of partial knowledge. We have reasons, growing out of our systematic endeavors to understand, to expect accidental properties of a more specific character than the essential properties required by the part of the system we know. They represent a metaphysical surplus which is not yet rationalized. They are the locus of the problems which give impetus to the elaboration of more comprehensive systems.

But the judgment of existence is more than the mute embarrassment of a systematic thinker in the face of the unsystematized; it is also a specification of the possibilities inherent in the system and an invitation to further expansion and articulation. Seen in this light, accidence is a condition of the existential judgment; the criterion of the existential judgment lies partly there and partly in the system and in its formulas of development — the laws of logic and the principles of methodology. The testing of the indications that accidents have in the light of a system is a dialectical process of construction and articulation, whereby the number of distinct systems is reduced and the accidental is raised to the essential. Only in this way can potential nature and existence itself be progressively revealed as intelligible.

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THE MEANING OF ETHICAL PROPOSITIONS

IN THE GENERAL REALM which, in the light of modern European philosophical discussion, may be designated as the realm of values there are many possible bases of reference for criticism. Among these, the concept of an ethical perspective on the field requires definition. Of course a purely arbitrary definition serves no purpose. What is required is a clarification of a historically important living tradition of criticism, and one which reflects abiding aspects of the nature of the social and generally existential situation in which what is known as human "conduct" takes place. That any such clarification should bring out the meaning of all criticism that has gone under the name of "ethical" is not, I believe, possible. The word has been too ambiguous. However there appears to be a common basis of reference in various diverse cultures, both occidental and oriental, insofar as they have been dominated by an ethical religion and accepted some form of the golden rule. If this does not define *the* meaning of ethics, it does define *a* meaning which is historically important, which is commonly taken in the covertly or openly Christian West as *the* meaning, and which is at least as valid, in the proper sense here of that term, as is ethical religion. It is the purpose of this paper to redefine this basis of criticism with a view to a consideration of the sense in which ethical propositions are meaningful in relation to it.

I

Ethical criticism and ethical discourse in the sense here to be considered presuppose a coming, concrete community of deliberative criticism among persons. Let me develop this statement.

C. S. Peirce wrote: "The fundamental problem of ethics is not What is right? but, What am I prepared deliberately to accept as the state-

ment of what I want to do? What am I to aim at, What am I after? To What is the force of my will to be directed?"[1] Value criticism and practical deliberation of the type to be discriminated in this paper is an activity of weighing against each other alternative possible futures from the point of view of the above questions.

As "the fundamental problem of ethics," so stated, is distinguished by Pierce from the question, What is right? so it should be distinguished from the question, What is good? Neither is it exactly the question of obligations, nor of moral values. It is a problem of practical deliberation, and, in a sense to be seen, of "practical reason," conceived as larger than and prior to any of these other types of question.

But it is necessary to continue at once to two further aspects of the situation, which are recognized elsewhere by Peirce, though in terms for which some substitutions will be made here. First, there is, implicit in the basic question, a reference to occasions of deliberation other than the present one. This may be seen from one point of view in the fact that, as I face making a practical choice now, I project before myself a future, or futures, in which the plans that I make at present will be reviewed by my own acts of practical deliberation to come, and I seek now a plan that will both (1) control action and (2) be acceptable to deliberation upon those future occasions.

However, the notion of my personal identity, binding together a particular sequence of deliberative occasions as my own, is not, in fact, self-sustaining in this context. I ask, To what is the force of my will to be directed? But the concept of my will is grasped only in terms of the contrast between mine and other wills. It must be projected against "the point of view of the other." In terms of a doctrine he called social behaviorism G. H. Mead has provided one set of studies of the sense and manner in which this must be the case, and at least his conclusions on the matter, which have their analogues in much older, idealistic, philosophical thought, are substantially confirmed by findings in the field of clinical child psychology.[2] Thus, within the

[1] *Collected Papers of Charles S. Peirce*, ed. Charles Hartshorne and Paul Weiss (Cambridge: Harvard University Press, 1935), II, par. 198.

[2] For some further discussion of this point, see my paper, "An Ethical Definition of Community," *International Journal of Ethics*, XLVII (January, 1937), 143–162.

purview of my plan of action, deliberately conceived at any time, there is included a recognition of deliberative occasions to come in the lives of others. And, as a matter of fact, while I may perhaps seek to anticipate somewhat more sympathetically my own patterns of desires in times to come rather than the desires of others, I tend to look forward to the coming *criticisms* of others more sensitively than to my own, because experience has shown them to be more dangerous, and, in other ways also they were clothed, in my early childhood experience, with an impressive social authority. Further, as Nietzsche and Freud have both seen, the idea and the instruments of conduct-control, and, derivatively, of self-control, are social in origin and essential structure. It is directly into a truly social medium that the plans of deliberation are projected. Only the prejudice of an over-individualistic culture, in which there can arise, for example, such a fiction as that of "the economic man," can make it plausible to believe that for practical deliberation the notion of a line of personal identity, running through a series of coming deliberative occasions, is "naturally," or even possibly, so central as the concept of an emerging identity of plan controlling many interacting occasions all of which, being concrete and therefore now partially unpredictable, represent to the deliberator the impact of "the point of view of the other."[8]

Secondly, deliberation of the type here to be considered seeks an *ultimately* acceptable choice. This means that it seeks a plan which will continue to exercise control and be acceptable to deliberation through *whatever* occasions of deliberation may, within the future whose control it contemplates, review it at any time. Whitehead has said that morality of outlook is equivalent to generality of outlook; Kant, that the good will is one which wills universal law. There are

[8] Cf. Paul A. Schilpp, "On the Nature of the Ethical Problem," *International Journal of Ethics*, XLVII (1936), 57–69. Perhaps the most important contribution of Charles L. Stevenson's *Ethics and Language* lies in its studies of the modes of persuasion whereby ethical judgments are future-making in their aspect of "recommending something for approval or disapproval." But, strictly speaking, approval and disapproval, though often centralized in ethics, are secondary matters from the point of view of the present article, and in various ways Stevenson's studies are so oriented as not to treat exactly of "the fundamental problem of ethics" as here conceived, nor, consequently, of the universe of discourse distinctive to ethics which it is one of my special purposes to consider. I cannot discuss the importance of the things he says without extending too far the length of this article.

difficulties in the interpretation of both of these statements. Recognition of the forward-looking and socially conceived will-making aspect of the deliberative situation makes possible the above statement of the limited scope of universality, or special kind of generality, of outlook which may be maintained by deliberation. The demand for something ultimate within the proper field of deliberation derives from and reflects religious motivation, with its essential penchant for an ultimate, fixing upon and seeking to render permanent and mature the early capacity for practical generality or "disinterestedness" which may be found to characterize the mentality and motivation of the human infant.[4]

In this manner, then, deliberation may be said to orient itself to an ideal and to an infinite community — a community which is ideal in the very special sense that it is not yet concrete and actualized but is to be so in the contemplated future when this is modified and shaped to some degree by the present act of choice; and a community which is infinite in the sense that the recognition of "the point of view of the other" here presupposed as defining the field to be considered is a generalized recognition which initially excludes no others who, within the scope of plans which are being formulated, will be deliberatively concerned. To an extent, then, we are concerned, as Bergson might say, with open, not with closed, morality; and the sense in which this distinction would be interpreted here will be indicated further near the end of this article.

Such is the fuller meaning of Peirce's question: To what is the force of my will to be directed?[5] The meaningfulness of ethical propositions within the context of this problem and relative to the special practical and social perspective upon the world which it establishes is the topic to be investigated in what follows.

II

By way of preparation, let me consider first the meaning of ethical ideals.

If a choice of, and decision upon, a course of action is to emerge

[4] At this point there is, I think, clinically verifiable truth in the doctrine of "the natural goodness of man." Cf. my paper, "The Definition of the General Will," *Ethics*, LIII (1943), 79–88.

[5] Cf. C. S. Peirce, *op. cit.*, par. 654, pars. 116–118, and *passim*.

from an act of deliberation having the character and structure described above, this must occur through the utilization of one or more central, guiding conceptions such that *concentration of attention upon them and adherence to their demands is thought to provide a continuingly tenable direction to conduct throughout the future whose control is being contemplated.* It is thus that decisions may become determinate.

For example, a conception of one of the traditional virtues may serve as the required sort of principle of choice. In meeting a certain practical situation which confronts me at one moment, I may say: Courtesy and consideration will be the rule by which I shall be guided. There is another rule, that of calling a spade a spade. This, I determine, will not be my guide in the present instance. For another situation I may select the idea of courage for my guide.

But, for the purpose at hand, *conceptions of the virtues* are interchangeable with *maxims,* such, for example, as "call a spade a spade" or "thou shalt not bear false witness." Or, centralized conceptions of chosen *ends-in-view* may play the same role, for example, the goal of "putting him in his place," or, in broad social questions, the objective of "the greatest happiness of the greatest number." Any one of these three broad types of conceptions may be a principle of choice in the sense just defined. Let me call any such principle of choice an ideal, though this is something of an extension of common usage — for one thing, in that it includes trivial as well as far-reaching practical standards.

Now concerning the meaning of ideals, so defined, note first that commonly they are found and to be understood only within some system of common usage. The words in which they are expressed, taken in any degree of isolation from their full social setting, are extremely ambiguous. What is courtesy? After all, what is a spade? And it is recognized as technically impossible properly to define a determinate objective in terms of two superlatives, such as the greatest happiness of the greatest number. But if courtesy is one thing to the English, and another to a Chinese gentleman, to one well versed in the tradition of Confucius the intricacies of what courtesy prescribes, in one way here and in another way there, may be marvelously determinate; and we can tell pretty well what the utilitarians were driving

at if we know their social setting and their literature generally. In relation to some tradition of "best usage," the meaning of an ideal may be determinate in a high degree.

A second point is close to this first one. What may be termed a kind of intuition is commonly involved in grasping the nature of the demands made by the various types of principles of choice which are termed here ideals. That is, while I may acquire a sense of what the principle of courtesy requires of the cultured Chinese gentleman through my familiarity with best usage in the matter, it will remain difficult or impossible for me, as it would be for him, to state "what I know" at all fully in words. Rather what I actually acquire is a kind of empathy for the complex pattern of controlled behavior to which the term directs him, so that I can, if I will, act out at least some of its subtleties, and much more fully than I could state what these should be in any language. A similar situation holds generally with regard to ideals. Thus, with his sure touch in dealing with the characteristic virtues of the Greeks, Aristotle declined to attempt any statement of just wherein "the mean" of action or of passion which any particular virtue required could be found. The precise nature of the balanced response demanded (and to which of two or more "extremes" it would be nearest) in meeting any special set of circumstances, he left a matter for cultured insight or intuition. As he expresses it at one point: Just what is required "is not easy to determine by reasoning, any more than anything which is perceived by the senses; such things depend upon particular facts, and the decision rests with perception."[6] But if that of which we speak here is to be termed intuition, it is to be noted that no assurance of the ideal's truth or validity in any sense is contained in it. What is given is only an element of meaning, which may be true or false, in a sense to be clarified shortly.[7]

And note, now, the nature of the relation of reference between the ideal and the pattern of conduct, existent in empathy, to which it refers. This is a relationship of demanding or requiring which arises out of a social and cultural situation with which the deliberator is sympathetically familiar. The demand qualifies the empathy of the

[6] *Nicomachean Ethics*, 1144a.

[7] For a fuller discussion of this point, though one which I should now wish to correct in some details, see my "Intuition and Criticism in Ethics," *Journal of Philosophy*, XXXVII (1940), 546–554.

moment and essentially points towards full, overt enactment in a future in which others, equally with the deliberator, are to be willingly involved. Just such a relationship of reference is not to be found anywhere outside the context of experience determined by the "fundamental ethical problem."

This is not surprising. No mystery should be made of it. But there is here a degree of real justification for the view of G. E. Moore when he held that a most common error in ethics is that of committing the "naturalistic fallacy" and defined this, at one point, as the fallacy of supposing that "there is no object at all peculiar to ethics." As there are relationships of reference peculiar to ethics, there are objects or relata equally distinctive, as will be seen more fully shortly. There is a universe of discourse peculiar to ethics; and so far as Moore's type of theory serves to remind us of this fact, it has the greatest ethical and metaphysical importance, which attaches also, I think, to Arthur Murphy's recent discussions of what he terms "the context of moral judgement."[8] But in the analysis of the situation offered here, just as no place is made for intuition of ethical truth, so it is possible, I think, to avoid giving any hostages to the often rather attenuated yet ultimately unavoidable sort of supernaturalism to which an "ideal utilitarianism" of anything like Moore's general type must, I believe, lead.

III

There is a further phase of the reference of ideals to which attention must now be turned.

The pattern of action to which an ideal provides direction is anticipated as to be carried out within, and in progressive intelligent response to, a realizable world of interesting prospects. There is no action which is not constant interaction with an ever newly apprehended surrounding world, and any ideal refers, though in a certain formal and limiting manner, to the prospect of some such environment. For example, courtesy implies people in civilized intercourse to be courteous to, and, we must add, people in their aspect of being interesting, directly or indirectly, to the one who is to be courteous

[8] Cf. *The Uses of Reason* (MacMillan, 1943), Part II, and *passim*. Cf also Murphy's paper "Karl Schmidt's Generating Problems and Systematic Philosophy," *Journal of Philosophy*, XXXIV (1936), 57–69.

to them, since otherwise he would not be acting in relation to them at all. To the general form of this reference of the ideal, however, content must be given from a different source, namely, from the current factual expectations of the deliberator. We may say, then, that it is an additional aspect of the meaning of an ideal in the deliberative context to invite and require some such supply of content, without which, what the ideal designates in the way of action cannot become sufficiently determinate to be truly relevant to the present act of decision. It is in this manner, under the aegis of ideals, that the world of persistent natural uniformities, and of causes and consequences, comes into the field of practical deliberation and of ethical discussion. Let one or two brief observations be made regarding the significance of this point.

It will be noted that the situation has been stated in such a way as to override the distinction between means and ends in the present connection. (In connection with one of the three important types of ideals, as listed above, the distinction is to be maintained, but that is a different topic.) In the anticipated environment of the course of conduct to which an ideal points upon a certain deliberative occasion, a man may see, momentarily, a goal which interests or appeals to him and whose achievement is in harmony with the ideal, and he may take an interest in intermediary steps to that goal solely or almost solely because they are judged to lead to it. But presently it can hardly fail to be the case that one possible modification of the way of reaching the objective will be felt to be more satisfying than another; and often contemplation of the pathway to the goal reveals along it things so interesting in themselves that the appeal of the goal fades into secondary importance. There appear few if any means which remain means only. Nor, as seen in its place in the causal order, can any goal remain an end-in-itself. It has, as Dewey has stressed, too many significant consequences. For deliberation, its surrounding world, or the environments of the actions which it contemplates, is a realm of possibilities, probabilities, repeatable uniformities and causal relations, with the light of interest playing over the whole, coming to prize within it one total set of possibilities to which one choice might lead as against another which would follow from another choice. The sharp distinction made and maintained by certain ideals between means and ends

is not to be understood except in terms of its seemingly (but only seemingly) paradoxical reference to this endless and meansless world of total prospects or expectations; and through a clarification of the "paradox" here, I believe, many difficulties concerning the relationship between ends and means can be resolved.

But one implication of what has been said is that the so-called secondary and tertiary qualities of events and sequences of events are not stripped from them as they appear in deliberation. Further, the interest-dependent qualities of things and events illustrate something like G. E. Moore's "principle of organic unities" in the realm of values. That is, for the deliberator they are what they are only in view of their place in a certain more or less fully conceived total world prospect or expectation. As a result of this, in the first place, events may be differently classified, and different uniformities observed among them, than would be discernible outside the deliberative context. And at least where a natural uniformity involves interaction between human beings and their environment of material things, this fact is very important. For example, the economist can hardly account for, or properly predict, the persisting market value of diamonds without taking into consideration their glitter, and the primitive human appeal of glitter, together, perhaps, with what Veblen called the love of "conspicuous waste"; and to use the findings of the economists, as, insofar as possible, he must, the deliberator must do likewise.

But it is one of the much noted paradoxes of the social sciences that analysis of "social causation" may change it. Thus, to return to the same example, an enunciation, or understanding in any form, of the concept of the love of conspicuous waste may tend to destroy that love. And the general principle in question here applies particularly effectively whenever some current category of deliberative evaluation, or, in other words, some current ideal, is involved, as was clearly the case when Veblen used the term "waste" — invoking echoes of "waste not, want not" and even more capitalistically pious phrases! But then the order of social causation is not only somewhat differently conceived, but also actually somewhat different, within the deliberative context than it would be outside of it.

There are issues in this connection which deserve very full and careful consideration. It has been the purpose here only to say enough

to indicate an additional sense in which, to return to Moore's phrase, there are "objects peculiar to ethics." Now three senses in which this is the case have been mentioned: (1) The pattern of action which "an ideal" demands, existent for deliberation in empathy, is a type of object unique to the deliberative context. (2) The interest-related qualities of anticipated things and events, "organically" dependent, or internally related, as they are, to their place in a deliberatively conceived total world prospect, are relevant entities, also unique to deliberation and a part of what ideals refer to in the deliberative perspective. (3) And (interesting) causal patterns nonexistent outside a community of deliberation provide content for the formal environmental reference essential to ideals in their deliberative function.

IV

With so much in the way of preparation, the topic of the meaning of ethical propositions may now be treated very briefly as follows.

Let us say that an ideal is asserted, or a truth-claim made for it, when it is judged at a certain deliberative occasion to make demands which are, then and there, ultimate for deliberation, in the sense of this term stated above, in Section II of this paper. That is, one judges that the ideal may be adhered to, and its meaning enacted, and that as this is done it will exercise continuing and deliberately acceptable control through all the coming occasions of deliberative criticism which will find a place and be concerned in the contemplated future for which the ideal is adopted. To put negatively the latter part of this statement, which (granted presuppositions now indicated) implies the former, one judges that the ideal will not be rejected in the light of any concerned coming occasion of deliberative review within the future to which its application is now contemplated.

Now this is something which may be true or false. And it is something which may be tested and found either to eventuate or not to eventuate, in the course of social action and social experience which the deliberator is projecting. *An assertion of the meaning of an ideal in this sense is an ethical proposition,* quite objectively true or false in reference to the "basis of reference for criticism" to which it refers. In the most general sense, ethical reality, or, ethically speaking, the Good, may be defined as the meaning of all such propositions which

are true — of all, if you will, which may be found to satisfy the above basic "semantic rule" regarding truth and falsity in the field of ethics.[9]

V

These conceptions call for development through an account of the criteria of verification for ethical propositions, and, if you will, of the kind of social operations through which such verification may best be carried out; but any adequate consideration of this topic lies beyond the scope of the present paper. The way is open here, however, to continue briefly to the prior subject of the manner in which systematization of ethical ideals is essential to the truth-claims which may attach to them, or, in other words, to their meaning when they play the role of elements in ethical propositions.

The necessity of system arises from the fact that when deliberation of any scope takes place usually more than one ideal must be used to render a decision determinate, since each ideal has only a limited sphere of application. Thus it has been noted that courtesy has its presuppositions regarding the circumstances within which its meaning applies. To be more specific, its field does not include fire-fighting, nor, except very indirectly, many aspects of men's joint search for truth. To change the illustration, in a famous instance, in order to cover a field of broad social planning, President Lincoln had to mention several things: "With malice toward none, with charity for all, with firmness in the right as God gives us to see the right." A cultured gentleman once said that his philosophy of life could be summed up in two words: temperance and tolerance; but there are few equally plausible and equally sweeping ethical oversimplifications. Commonly, in order to make a real choice and decision, several ideals must be utilized together; and this raises questions of some degree of precision regarding spheres of application, intersection and conflict, subordination and precedence — the questions of what Nicolai Hartmann has suggestively called the dimensions of valuational space.

The required sort of system of ethical ideals, articulated in terms

[9] For a study of the kind of objectivity in relativity which such a definition of the Good implies, cf. my "An Ethical Objective Relativism," *Philos. Rev.*, XLIX (September, 1940), 515–535. There were, however, one or two outright errors, and I should now wish to make certain further modifications, in that paper.

of a pattern of such relationships as I have just mentioned, may be termed an ethical system. The development of ethical systems is the task of ethical theory, as distinguished from the theory of ethics, in which the present article is engaged. It is relevant here to note, however, that among the great ethical systems, Aristotle's is typical in various ways, and, among other things, it is typically defective from the point of view of the fundamental ethical problem as here defined. For, to state the case most briefly, his system is nominally unified in the ideal of "activity in accordance with virtue, or, if there be several virtues, in accordance with the best and highest of these."[10] But there *are* several virtues, of two broad general types, and questions of their order and interrelationship, one with another, are never treated very systematically by Aristotle.

And one reason for this seems plain. The demand for a high degree of precision in the statement of the relationships among ideals which characterize an ethical system increases with the scope of the future for which the system is planned, and particularly with the breadth of communicability to other deliberators which is to be demanded of it. But for Aristotle communicability and acceptability to the ethical intuition of the properly educated contemporary Greek gentleman was all that was required. This is just another way of stating his doctrine that intuition of the meaning of the (Greek) virtues carried with it intuition of their final authority or truth. Manifestly, from the point of view of this article, to assume such to be the case is provincialism grown dogmatic — which is rather often a safe and comfortable thing — and is the besetting sin of ethical theories and the source of their gravitation both toward some form of intuitionism (and quest for certainty) and toward inadequate articulation of statement. The accusation that there is a covert, and, socially conceived, viciously unfortunate relativism which actually characterizes the views of ethical absolutists generally is, so far, justified. Absolutely, such relativism is a terribly unfortunate thing; and, to borrow a phrase from the theologians, daemonic. Such are the "closed" moralities.

A claim, then, to a well-defined place in an ethical system, and in one more fully articulated than Aristotle's, must be a part of the truth-claim which attaches to any ideal when it is asserted as an element in

[10] *Nicomachean Ethics*, 1098a.

an ethical proposition. This reference of an individual ethical proposition to a system, within which only it can fulfill the conditions for ethical truth, is a transcendent reference in that, while it may be asserted that an inclusive system there must be, just what this is will not be known at the time of the assertion of the individual proposition which refers to it. The system of ethics is like the system of physics, which contains what was true in the systems of Kepler and of Newton, but is now known to require modifications and reorientations, and, at points, outright denials of what they said, as it will require also modifications of the formulations of Einstein and his successors. Similarly the systematic task of ethical theory, in relation to the "infinite" or open fundamental ethical problem, as here defined, is always a tentative one, subject always to correction in some detail in the field of unlimited coming social and deliberative experience to which it points. In the distinctive entities, together with their cosignificant defining, and derivative, patterns of interrelationship, which constitute *a true* ethical system is to be found the ideally and truly developed form of the universe of discourse distinctive to ethical thought, or, if you will, the true realm of practical reason, to which all ethical propositions refer in the transcendent aspect of their meaning or reference.

VI

The foregoing platform for, or prolegomena to, studies in ethical theory may be seen to be very close in its conception of the structure of the field, though perhaps not in some other respects, to the views of Karl Schmidt, which deserve, it seems to me, a steadily increasing consideration.[11] Particularly I feel that it is important, as Schmidt has seen, to distinguish clearly between (1) what is involved in determining "the fundamental problem of ethics," or, as he puts it, "the generating problem of ethics," and (2) questions which arise within the universe of discourse which is distinctive to the context of this basic problem. For example, it is important, I think, to maintain that what Kant called "the kingdom of ends" is not, as I believe Arthur Murphy has held it to be, an ethical ideal, albeit one with a

[11] Cf. Karl Schmidt, *The Creative I, and the Devine* (New York: The Dial Press, 1937), chs. ii and ix, and *passim*.

"natural basis,"[12] but is rather, understood as what I have termed here "the coming community of deliberative occasions," a presupposition of ethical discourse. It is thus, I think, that we shall clarify both the basis for the progressive, and, in a broad sense, empirical, criticism of ideals (as distinguished from this presupposition), and also the question of establishing the status and genuineness of what is "the generating problem" of ethics, seeing the latter unambiguously as not an ethical but an existential and ontological question.

On this topic of the status of the underlying problem of ethics, I suppose it is always admitted as only part of the truth to say that discussion is addressed "to whom it may concern," and that if anyone is not concerned about or in the problem he may simply pass it by. For attempts may be made to show the senses in which it is not, formally considered, a meaningless problem. And the scope of its social significance in the contemporary world is a long, further topic in the sphere of the questions of "one world in the making" and "the uses of reason." Concerning the existential status of the kind of community of criticism which constitutes the problem, since this is a concrete community which is to be in the future (or, perhaps, if this article is mistaken, is not to be), it would appear that one is entering here upon the field of the philosophy of history, which is continuous, according to one interpretation, with the field of theology. I think there is no avoiding such far-reaching implications. But it would be the finding of this paper that these problems may be approached both without committing the "naturalistic fallacy" defined as the fallacy of denying that there is a universe of discourse peculiar to ethics, and also without any sort of surrender to supernaturalism or a priorist rationalism.

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[12] *The Uses of Reason* (New York: The Macmillan Company, 1943), p. 125.

ETHICS AS HYPOTHESIS[1]

AT THE MEETING of this conference held a year ago, I read a paper in which I proposed that metaphysical systems, theories, or principles should be regarded as hypotheses.* I used the word hypothesis as it is used in describing the theories and laws of the natural sciences. Of course, in as far as the subject matter of metaphysics is different from that of the natural sciences, the methods of verification of hypotheses will be different, but the fundamental meaning of the term is the same. Dogmatism assumes the possibility of *certain* knowledge. Hypothesis yields probable knowledge. Natural science is not dogmatic. Perhaps some natural scientists are dogmatic, but if they are, that is their private error. I suggested that dogmatism is no more justified in metaphysics than in natural science. This is not a startling suggestion. Yet it remains that most philosophers tend to be dogmatic. This tendency serves to hold back the advance of philosophy and to bring it into disrepute. Metaphysical knowledge is probable knowledge, but it is no less on that account to be regarded as knowledge.

Skepticism doubts the possibility of knowledge, and it has been customary in the history of philosophy for those who found no grounds for dogmatic certainty to become skeptics. Again, however, this is no more justified in metaphysics than it is in the natural sciences. A natural scientist who recognizes his theories and laws to be hypotheses does not thereby become a scientific skeptic. Perhaps there are scientific skeptics, but the leaders of research are not to be counted among them. To propose that metaphysical theories should be stated and treated as hypotheses is in opposition to both skepticism and dogmatism.

Tonight I want to propose that the systems, theories, and principles

[1] Read as the Presidential Address at the meeting of the Southwestern Philosophical Conference at Dallas, Texas, December 27, 1946. Prepared with the aid of the Tulane University Council on Research.

*See "Metaphysics as Hypothesis," *Journal of Philosophy*, XLIV, no. 13.

of ethics ought to be regarded as hypotheses, again meaning by the term hypothesis just what it means in natural science. A hypothesis, in science, is a generalization, or series of generalizations, such that, if it is assumed, the observed particulars of experience will fall under it as special cases and thus be explained. The logical form of a hypothesis is, "If the generalization G is true, then the special cases a, b, and c will take place." One then sets about to find out whether or not they do so. Scientific hypotheses are always general in nature, explanatory in intent, and are never categorical. All scientific knowledge is summed up in terms of the most inclusive hypotheses, which, when they have received definite formulation, a reasonable amount of verification, and are not confronted by strong rival hypotheses, are called natural laws.

The task of ethics is explanatory, and the nature of ethics is systematically general in the same way as are the task and nature of natural science. The fundamental difference between the two lies in the subject matter. As natural science is concerned with the order and connection of natural phenomena, ethics is concerned with the order and connection of moral values. The terms "ethics" and "morals" are not synonymous. Ethics is theoretic while morals is practical. Ethics is concerned with the understanding of moral conduct. A moral rule or standard of conduct is not an ethical rule or standard. I do not know just what an ethical rule or standard could mean unless it were a standard of *judgment* of moral values. A code of ethics has no meaning within philosophical discourse. There are codes of morality. The Bar Association or the Medical Association may have what they call codes of ethics, but this use of the word is not to be confused with its philosophical meaning.

It is not necessary to know the principles upon which we act in order to act — not, indeed, even in order to act well. As C. D. Broad says in regard to Bishop Butler, "He states with great clearness the principles according to which decent people do feel and act and judge, though they could not state these for themselves."[2] Or as Kant says in regard to an analogous field in the *Critique of Judgment*, "The examination of the faculty of taste, as in the aesthetical judgment, is not here planned in reference to the formation or the culture of taste

[2] *Five Types of Ethical Theory* (New York: Harcourt, Brace, 1934), p. 55.

(for this will take its course in the future as in the past without any such investigations)."[3] The task of philosophy, and hence of ethics, is reflective and theoretical. In the nature of the case, action comes first and reflection comes afterward. The derivations of the words "reflective" and "theoretical" are instructive.

When I propose that theories of ethics should be regarded and treated as hypotheses, I mean that the explanatory principles of the understanding of moral values are best formulated in the hypothetical manner. It is in the relation between the antecedent and the consequent of a hypothetical judgment that the grounds of understanding lie. Take the proposition "If *a* then *b*." When *a* and *b* are both particulars, the relationship is that of cause and effect. When *a* is a generalization and *b* is a particular, one may say that *a* explains *b*. The hypothetical judgment is the ground for understanding.

At this point it may be well for purposes of clarification to point out a contrast between what I mean by saying that all ethics is hypothesis and what John Dewey means by using almost the same words. The contrast is not strongly marked or ever superficially evident, but I am sure that it is there. In *The Quest for Certainty,* Dewey says that if we carried over the experimental method from physics to ethics, all "standards, principles, rules . . . tenets and creeds would be recognized to be hypotheses. . . . They would lose all pretense of finality — the ulterior source of dogmatism."[4] I thoroughly agree with him here, but what I want to call to your attention is that he is talking about "standards, principles, rules, tenets, creeds" — in other words about morality, not primarily about understanding. As he is talking about action, the test is to put them into action in an experimental spirit and see what happens. I suggest that what happens can serve as a test only if it is recognized as a *good* or an *evil* result. In other words, the principle of understanding (that is, the *ethical* principle in this case) is already assumed.

It is possible that I am here making the separation between theory and practice that Dewey complains of all through this book, but I do not think so. I do not intend to isolate thought and knowledge from action; but I maintain that there is more to thought and knowledge

[3] Preface to the *Critique of Judgment,* Bernard's translation (New York: Macmillan, 1914), p. 5.

[4] *The Quest for Certainty* (New York: Minton, Balch, 1929), p. 277.

than Dewey's experimental method takes account of. Understanding is a fact of experience, and the understanding of "standards, principles, rules, tenets, and creeds" is part of the task of ethics. It is inadequate to say that the understanding of these can be achieved by putting them into practice and seeing where they lead. I admit, of course, that putting them into practice is a *necessary* condition of their being understood, but it is not a sufficient condition. I doubt that one could test the validity of the Utilitarian theory as over against Kant's theory by performing social experiments.

A careful logical analysis must precede and accompany the social experiments. Basic concepts and categories must be critically examined. To return to the previous illustration, the Utilitarian notion that the concept of the good is fundamental must be compared and contrasted with Kant's notion that right, duty, obligation are fundamental; or again, the different roles that motive plays in the two systems must be examined; or the different conceptions of the nature of reason.

Perhaps Dewey would agree with me here. He brilliantly performs such analyses at many places in his writings.[5] Nevertheless, the language he employs, and his whole exposition, lays the emphasis on practical experimentation so strongly that it appears to me to be one-sided. Of course, to appear one-sided on the opposite side is just as bad, and I ought to guard against it. I think I do by maintaining that practical experimentation is a necessary condition of the testing of ethical hypotheses, even if it is not sufficient. I agree with Dewey as far as he goes, but I do not think that he goes far enough in his theory of logic or of the understanding.

G. H. Mead, in discussing the relation of scientific method to ethics, makes a point that I think is close to my criticism of Dewey. He says, "Science does not attempt to formulate the end which social and moral conduct ought to pursue, any more than it pretends to announce what hypothesis will be found by the research scientist to solve his problem."[6] And again, "Scientific method does not insure the satisfactory solution of the problem of conduct, any more than it insures the con-

[5] See the analysis of Kant's "Copernican revolution" in the very next chapter of *The Quest for Certainty*.

[6] "Scientific Method and the Moral Sciences," *International Journal of Ethics*, XXXIII (1923), 237.

struction of an adequate hypothesis for the research problem."[7]

An adequate hypothesis in ethics must explain all the facts of the moral experience. This is not as simple as it sounds, for the facts of moral experience are not given in the same way as are the facts of the natural sciences. The facts of moral experience include valuings and evaluations, and these change from time to time and depend on the social environment, and possible values that are not attainable within any actual physical environment are irrelevant to ethics unless the vision of them can lead to a modification of that environment.

Ethics must be critical of its values and valuings in a way that the natural sciences are not critical of their material. This, I take it, is what is meant by saying that ethics is a normative science. It is not the primary business of ethics to lay down rules of conduct or to point out how the good can be attained. This seems to be what some persons have thought is meant by saying that ethics is a normative science, but to think this is to confuse ethics and applied ethics. Nevertheless, as I have tried to emphasize, the application of ethics is not only relevant but must be included within any scheme of verification of ethical hypotheses. This is because deductions can be made from hypotheses, and these deductions must be in harmony with experience. Otherwise the hypothesis does not do what it was set up to do.

The method of hypothesis in ethics is completely incompatible with dogmatism. Dogmatism is more vicious in ethics than in any other field of philosophy, because here it dictates not only the correct way to think but also, through the relevancy of applied ethics, the only correct way to act. Thus, ethical dogmatism is the theoretic counterpart of moral intolerance.

The method of hypothesis is also incompatible with ethical skepticism. I am going to give the name "antinomianism" to ethical skepticism, and it is the theoretic counterpart of moral irresponsibility. "Antinomianism" was originally the name of a heretical tendency in Protestant Christianity, but its general character is such that it has been applied to ethical skepticism, and it seems to me that the application is good. Any ethical subjective relativism tends to move over into antinomianism, just as Berkeley's subjective metaphysics moved into Hume's metaphysical skepticism. The Sophistic period in Greek

[7] *Ibid.*, p. 238.

philosophy was the first manifestation of this tendency.

A complete antinomianism would be the view that there is no good or evil. If human beings are wont to think that there is, the thought is a complete illusion. I once heard this expressed in a nice metaphor: "The good is but the irridescent sheen that floats on the surface of this mechanical world."

I am not disposed to argue much against antinomianism. All the arguments that hold against the dogmatist hold against the antinomian, for he operates within the framework of the same fundamental assumptions as the dogmatist. The antinomian, like the metaphysical skeptic, is merely a frustrated dogmatist. Not having found the grounds for *certainty* of knowledge in ethics, he says that there is no knowledge of good and evil, right and wrong. In answer to him I say that there is the experience of moral values to be taken account of in our philosophy, and to say that the experience is an illusion is too easy a way out. We are able to form hypotheses about moral values, and we can find evidence, both logical and empirical, tending to verify or to overthrow the hypothesis. In the framing and testing of hypotheses knowledge is acquired. If it is not worthy to be called knowledge, than neither are the findings of natural science. If the findings of natural science cannot be called knowledge, then we are dangerously near to robbing the term "conceptual knowledge" of all meaning.

Many different hypotheses of ethics have been formulated in the course of the history of philosophy. The fact that these were originally stated and held as dogmatic doctrines is irrelevant to the view that they are and should be regarded as hypotheses. A random list would include intuitionism, rationalism, authoritarianism, naturalism, hedonism, a theory of moral sentiments, and others. Each one of these in turn has appeared in many variations. For example, intuitionism may take the form of a conscience theory, or the form of Sidgwick's theory, or that of G. E. Moore. Rationalism may take forms as different as that of Spinoza from that of Kant. Hedonism may be of the Cyrenaic variety, or the Epicurean, or the Utilitarian.

Again, any specific theory may involve a mixture of the fundamental positions, for they are not all mutually exclusive. For example, a conscience theory, though being fundamentally intuitionist, may be

complicated by theological considerations. If conscience intuits the commands of God, then the authority of God is involved, and the theory is both intuitive and authoritarian. Or again, Spinoza's ethics is both rationalistic and naturalistic. Sidgwick's is both intuitional and hedonistic. And so on.

I suggest that if we examine intuitionism as a hypothesis, we shall find it unsatisfactory both from the standpoint of logical analysis and from that of application.

The first difficulty with theories of intuition in ethics is that the meaning of intuition is not sufficiently analyzed. If the theory holds that ethical principles are intuited, as for example Sidgwick holds that the universalistic principle in Utilitarianism is intuited, then it is in difficulty, for a theoretic principle is a generalization, and the evidence indicates that the mind does not intuit generalizations but constructs them. Even Plato did not see any evidence to support the possible view that the mind intuits generalizations in this life, but as he had no explanation other than intuition for the original source of knowledge, he created the myth of a previous existence of the mind, wherein, unhampered by the crudities of the body, it intuited the Ideas. Plato had no theory of generalization beyond the doctrine of reminiscence. Aristotle had a partly satisfactory theory of generalization, or at least of abstraction, so he could dispense with the doctrine of reminiscence. Aristotle's theory, however, did not hold that generalizations or universals are intuited (with the exception of the fundamental first principles about which he was not very clear). They are constructed, or at least the knowledge of them is constructed, by the mind. The Middle Ages, from St. Thomas on, followed Aristotle here.

All the evidence obtainable from the study of modern logic indicates that there are no intuited general principles. The postulates of modern logic are not regarded as axioms — that is, self-evident principles. The type of ethical intuitionism that holds that certain fundamental principles of ethics are intuited cannot be regarded as having received any substantial verification until a more adequate doctrine of the intuition of general principles has been produced.

G. E. Moore holds that the intuition within the experience of moral value is not of general principles but of a particular character unique

to the good. In this case the good is not determined by ethical principles, and whatever generalizations can be elicited are empirical generalizations and are strictly descriptive, as are the generalizations of natural science. It would seem to follow, then, that ethics is not normative, and it is difficult to see in what way it would differ from the natural sciences. It is difficult to see even why it should be considered a field of philosophy. The only reasons left for so considering it are that the unique character called good has not been adequately displayed, and that the process of intuition has not been identified even as well as has the intuitive element involved in the experience of natural phenomena. The only philosophic question left to ethics is the question of determining the intuitive nature of the foundations of morality. In view of the fact that this determination has not been accomplished, I hold that G. E. Moore's type of intuitionism in ethics has received no substantial verification.

The difficulties with the conscience variation of intuitionism lie in the fact that intuition does not allow of error, being immediate apprehension. The deliveries of conscience, however, are notoriously different for different individuals and at different times and places. As long as the deliveries of conscience are in such great disagreement with each other, the conscience theory is not an adequate hypothesis by means of which to reduce our moral experience to order. The psychological theory of conscience seems to be a more adequate hypothesis of the nature of conscience, but if it is adopted, then conscience is no longer either an intuition or an authority.

The authoritarian hypothesis of ethics is palpably inadequate, because in the first place doubt may be raised that it is genuinely a hypothesis. An authority is not an authority unless it is correct. Hence authoritarianism is by nature dogmatic. Of course, it can be stated in a hypothetical manner, namely, that I entertain the hypothesis that it is best to act according to an authoritarian principle. Immediately, however, the question can be asked, "Why is it best?" If the answer is, "Because the authority says so," then it begs the question. If, on the other hand, any other answer is given, it appeals to a principle beyond authority, and thus the authoritarian hypothesis, even if it is a genuine hypothesis, gives way to another. Thus authoritarianism is either dogmatic or leads to another and more ultimate hypothesis.

In the variations of authoritarianism, the authority appealed to may be God, custom, tradition, history, law, reason, or what have you. None of these variations escape the foregoing argument, for it is completely general. Furthermore, in practical application, authoritarianism is inadequate, because if any person does not recognize the authority, there is nothing that can be done to him except to force him. The authoritarian cannot consistently allow the dissenter to go on his own way. To do so would be to compromise his own principles, because he thinks he knows his authority is correct. In history, whenever authoritarianism has become strong enough, it has issued in a reign of intolerance, and thus, in the name of moral authority some of the worst evils in history have been perpetrated.

Reason may be appealed to as an authority or it may be appealed to reasonably. In the latter case, it is used in the formulation, application, and testing of hypotheses. This is its *logical* use. A dogmatic or authoritarian use of reason is not its logical use. Logic is concerned with seeing what conclusions follow from what premises, or, in the more stylish way of putting it, with drawing out all the implications of whatever postulates one starts with. *Applied* logic, then, develops the implications of hypotheses and tests these against the experience in the field which the hypothesis was formulated to cover. Ethics may find that the rules of conduct laid down authoritatively really do attain the good. But this is *not* because they are authoritative. I would hold that this is true of many but not all of the tenets of Christian morality.

No one would deny that moral values have *something* to do with the ends or outcome or purposes of conduct. Even Kant did not deny this. He held that there ought to be a harmony between virtue and happiness, and his famous justification of the belief in God rests on this view. If moral values have anything to do with ends, then their achievement requires an intelligent adjustment of means to end. This fact would seem to me to indicate that the most fruitful hypothesis in ethics with which to start our study would be some form of the rationalistic hypothesis. The principles of the adjustment of means to end, in fact all of the principles of moral conduct, have to be tested in the light of all available knowledge. This is true of rules and precepts as well as of theoretic principles. This is a task that calls heavily on the logical use of reason.

I suggest, however, that the rationalistic hypothesis in ethics should be tempered by a judicious admixture of hedonism, but I hasten to add, not the ordinary kind of hedonism that, for example, G. E. Moore argues against as the "naturalistic fallacy." Ethics deals with values, and all values are polar, that is, there are positive and negative values, or disvalues. In ethics these are called the better and the worse. We need some principle by means of which to order the judgments of value according to better and worse. I suggest that this principle is the pleasantness of the experience. Ethics, however, is not concerned primarily with the immediate experience. In the relationship between means and end a temporal span is indicated. Therefore, the pleasantness relevant to the ordering of the intensity and polarity of moral values must be considered in the long run. Here I am merely formulating the theoretic objection of Epicurean hedonism to Cyrenaic hedonism.

The Utilitarian called the consideration of pleasantness in the long run happiness. This is not to be confused with Aristotle's eudemonia, but even in Aristotle's doctrine, eudemonia is not independent of pleasantness in the long run. Aristotle said that the happy life will also be pleasant. Pleasantness is not *definitive* of the good life but is included within it.

In a similar way the kind of hedonism I am advocating is not a definitive hedonism, but an evaluative hedonism. The good is not defined as pleasure or happiness, but the polarity and intensity of moral values cannot be explained without some reference to happiness. I hold that the objections to *defining* good as pleasure or happiness are conclusive, but this does not show that pleasure or happiness is irrelevant to good. I suggest the hypothesis that happiness is relevant as the evaluating factor to explain the polarity and intensity of moral values.

Utilitarianism has never been able to *prove* that the happiness of the greatest number is better (according to their defined meaning of the word better) than the happiness of some individuals. I think that the course of the argument from Bentham through Mill and Sidgwick to G. E. Moore indicates pretty conclusively that it cannot be proved. The reason *why* it cannot be proved is that they have *defined* good in terms of happiness. On the other hand, if definitive hedonism is avoided, the suggestion that the happiness of the many is better than

the happiness of the few can be entertained as a hypothesis and be investigated to see how far the moral judgments of mankind, taken in connection with developing sensitiveness to moral values, can be explained and ordered by that principle.

It may be objected that the above way of looking at ethics deprives the moral life of all obligatoriness. If it did, I should hold that that consideration alone would render the hypothesis untenable. One of the facts of moral experience is a feeling of obligation. Any hypothesis that omitted this would have to be able to show consistently and adequately that such a feeling is irrelevant and is to be explained some other way.

I do not think that this hypothesis robs ethics of the meaning of obligation. "I ought to do" means "It will be *better* if I do." Of course, it is possible that someone might come along and say, "I do not want to attain the good, therefore I have no obligation." The answer would be to show him in the manner of Socrates and Plato that he does not know what he means when he says, "I do not want to attain the good"; or else to show him in the manner of Kant (or by an adaptation of Kant) that to say, "I do not want to attain the good" implies the statement, "I do not want to be reasonable." (Perhaps the Socratic-Platonic argument comes down to this in the last analysis.) If a man wants neither the good nor reason, there is nothing that can be done except to see that he is rendered harmless. I do not say that reasonable conduct must be forced upon him. I only say that it must be ensured that he cannot destroy the possibility of good and reasonable conduct on the part of those who are intelligently sensitive to moral values. To maintain that such a man has a duty and an obligation in spite of his irrationality is to be practically impotent and theoretically irrelevant.

These suggested details are of minor importance in my thesis, however, and are included only to indicate how it could be specifically applied. The major theme is the adverse criticism of dogmatism in ethics on the one hand and antinomianism on the other. Knowledge is to be found in the area between the two, and I suggest that the method for exploring that area that will prove most fruitful is the method of hypothesis.

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PHILOSOPHIC METHOD

THIS PAPER IS AN OUTLINE of a philosophical program followed by a statement of several tentative convictions under the influence of which the program was conceived.

Although philosophy could hardly be limited to the logical analysis of propositions, such analysis is still essential, not only to philosophy, but to any activity claiming intellectual competence. Words are the currency and instruments of belief, action, and attitudes, as well as thought. They are media whose status, effects, and reliability cannot be taken for granted. Propositions not only express our thoughts and attitudes but help to create them. Analysis of propositions, far from being only a highly specialized form of amusement for mathematical logicians or a convenient simplification of the problems of philosophy, is the prerequisite of intellectual adequacy.

Although some logical positivist modes of analysis seem oversimplified and a bit naïve, the intent and general form of the analysis are highly significant. When A. J. Ayer, for instance, writes "We . . . ask about any putative statement of fact, . . . would any observations be relevant to the determination of its truth or falsehood? And . . . if a negative answer is given to this . . . question . . . we conclude that the statement under consideration is nonsensical,"[1] a significant emphasis is clear. The statement is naïve in its punning identification of "non-sensory" and nonsense; in its being set forth as a principle or even a conclusion whereas it is clearly a concealed definition of the word "empirical"; and thirdly, in its begging the question of meaningfulness by annihilating by definition other types of meaning rather than by revealing specifically the confusions with which they are involved. But Ayer's statement and its context, if one overlooks a certain arbitrarily narrow use of the word "meaning,"

[1] *Language, Truth and Logic*, pp. 25, 6.

does point out the necessity of determining, not whether a proposition has meaning, but what *dimension* or dimensions of meaning it has.

In brief, the positivists have made us aware of the fact that propositions and words, and the ideas with which they are associated function in *three* dimensions. Following C. W. Morris,[2] these may be called the syntactic, the semantic, and the pragmatic.

First: the syntactic. Words and propositions and ideas are related, in what might be called a horizontal dimension, to other words, propositions, and ideas. Grammatical relations are the more familiar examples of syntactic meanings, but the more important for philosophical purposes are the logical and mathematical syntactic relationships. All reasoning insofar as it conforms to some rules of deduction or symbolic transformation, rationalistic or scientific, operates in this formal or syntactic dimension.

Second: propositions, words, and ideas may sustain *semantic* relationships, acting as *signs designating or referring to* some data or events of a *non*linguistic type. Denotative or extensive reference is perhaps a more familiar term for the semantic dimension of meaning.

Third: language may express, as well as influence, attitudes. Exhortation and persuasion, propaganda, as well as poetry, are distinguishable from mathematics and sciences by virtue of the subordination of the syntactic and semantic functions to the expressive and affective. The relations words and propositions bear to persons, whether expressing the speaker's attitude or influencing those of the hearers, are said to be in the *pragmatic dimension.*

One fundamental task for philosophy, then, is the development of *critical habits* and *techniques of analysis* with the object of discriminating and making explicit the dimensions of meaning in learned, scientific, political, religious, or common discourse. It may then appear that much of our thinking, in philosophy, politics, or religion, while ostensibly devoted to discovery or description of what we take to be real, ostensibly designating Justice, Substance, or God, may instead be a kind of acrobatics on a web of implication or a psalm to our aspirations.

Next, the *second function* of philosophy: philosophy has been and

[2] *Signs, Language and Behavior*, p. 217 ff.

must be creative. The discrete and partial formulations of knowledge contributed by the sciences, arts, and perhaps religion essentially falsify experience, which occurs as Gestalten, as organic wholes. One need not be a Bergsonian to recognize that formulations of experience in symbolic terms under the limitations of special methods devised for special purposes do less than justice to a universe that is not created by our categories. The formulation of more comprehensive hypotheses will always be a challenge; and the meeting of this challenge may not only satisfy the need for a cosmic orientation so frequently left to religion but may also enrich and clarify the special views and the special purposes to which they are instrumental.

But such hypotheses must be treated *as hypotheses*. In respect to the kind of conviction with which they are held, the kind of verification to which they must be subject, the existential or ontological status of the presumed referents, they differ, so far as I can see, only in the degree of precision involved from hypotheses of the more common range.

I am doing more, in short, than substituting the words "comprehensive hypotheses" for "metaphysics." I am suggesting that when the traditional problems of metaphysics and epistemology are examined from the point of view of the kind of linguistic analysis earlier suggested, the frame of reference of the problems and the method of their treatment will change. We shall speak less of what something nonexperienceable *must* be like, and more about what the comprehensive patterns of our experience seem to be. Instead of arguing from what we know to an unknowable that our words imply, we will rather formulate the hypothesis or system of hypotheses which by implying propositions that describe our experience will facilitate the understanding, prediction, and control of that experience. Whether we are justified in interpreting such hypotheses ontologically, and whether we can meaningfully (in the semantic sense) do so, I shall discuss later.

I believe that the traditional problem areas of philosophy lend themselves satisfactorily to this treatment. For example: *ethics* and *social theory*. The philosophical enterprise has been unique in its insistence upon subjecting the moral experience to rational and reflective inquiry. Its attempts have not been entirely successful for reasons that

the logical positivists in their dimensional analysis of language have made clear. Philosophers have attempted to prove norms and argue for them without being aware that the language of ethics, like the language of moral behavior which it attempts to rationalize, is primarily emotive, expressive, and hortatory, rather than descriptive.

While theorizing and arguing about what *is* the greatest good and why certain ends of action or rules of behavior "ought" to be taken as normative, ethicists have assumed their discourse to be a fruitful union of the syntactic and semantic dimensions, intelligible and logical discourse *about* something, whereas it was in large part a defense or praise of an attitude acquired on other grounds; an attitude which the use of ethical and moral language might induce the hearer to share. Although ethical language can be persuasive and influence attitudes, the influence is not by way of logical coercion or conviction upon presentation of empirical evidence. Ethical theory, in short, is useful and effective in ways not accounted for by the theories. Intrinsic value is a psychological and biological fact; it is not the end product of intellectual philosophizing. It antedates, though it may be indirectly influenced by, thought.

Ethics as a philosophical discipline has scarcely advanced beyond Aristotle. The problem that Aristotle posed but answered only obliquely remains: namely, what kind of society, what kinds of education, and what patterns of individual and group behavior will, by realizing the potentialities of individuals, and by satisfying and integrating their fundamental needs, bring about the sense of well-being which we seek? Delineation of the characteristics of that sense of well-being and an outline of the needs and potentialities to be satisfied are proper philosophical tasks.

Theories of the State, whatever their contributions to our understanding of the requisites of successful social life, have been in large part intellectualized special pleading for class interests or social attitudes which antedated the theories and were not explicitly treated by them. Advocacy of changes in the locus of power or justifications of the *status quo* based upon ostensible arguments about the nature of man or the nature of the State frequently selected as basic those potentialities of the human organism in social groups which either were *made* characteristic by the emphases of the society to be defended or

would be necessary in the kind of society advocated. In short, much political theory, so-called, was largely learned propaganda.

But metaphysics and epistemology have frequently been no more objective. Dewey suggests in the essay "Philosophy and Civilization": ". . . however it may stand with philosophy as a revelation of eternal truths, it is tremendously significant as a revelation of the predicaments, protests, and aspirations of humanity."

In the *third* and concluding division of the program, using the semiotic and empirical studies of ethical ideas, ethical language, human values, suggested above, philosophers should undertake explicitly and self-consciously the task which heretofore has been a determining but unrecognized part of their historical contribution, namely, the study of the humane significance of institutions, social patterns, dominant ideals, and historical trends. We should attempt to make explicit empirically derived patterns of social behavior, attitude and thought, focusing our attention on the impact of these patterns on the struggle for the realization of human values, the satisfaction of basic needs. Social philosophy could be a kind of meta-anthropology, empirically oriented, but self-consciously ethical in its discrimination of the patterns of behavior and attitude of our time. Like the Decentralists, a group including Baker Brownell, Frank Lloyd Wright, Lewis Mumford, we should clarify the divisive and disintegrative intellectual, aesthetic, economic, and religious presuppositions of our culture. Like them we can perhaps contribute to a modern synthesis in which our natural and social sciences, our economic resources and operations, our architecture and city planning, aesthetic demands and religious aspirations may at least be envisaged as part of an ethically unified and logically coherent, organically oriented, and practical social ideal. Perhaps in such an enterprise a philosophy can be a guide to life as well as a terminus of inquiry.

The philosophical program here outlined attempts to deal in three dimensions with the problems of the world. (1) Philosophy has a logically analytical function. (2) Philosophy is concerned with the critical formulation of comprehensive, empirically derived, and verifiable hypotheses. (3) Philosophy should help to formulate the social ideals needed to provide empirically significant and intellectually adequate criteria and guides in social policy.

The program was not devised, however, to conform to predetermined triads or to lend itself to a tidy formulation. Though it could be tailored to fit almost any philosophic predispositions, the interpretation given it makes it evident that that was not my purpose. Instead I have attempted to suggest the kind of enterprise that can have significance in terms of certain operating assumptions that I find unavoidable. A statement of these assumptions follows.

I. Philosophers rarely disagree. They differ. Disagreement exists only where agreement is a logical possibility. Apparent disagreement in belief is frequently a difference in attitude.[3] Philosophers' arguments would not be inconclusive and unconvincing if a common understanding awaited only the application of rigorous logic. The symbolic logicians' anticipations of a clarifying of the intellectual atmosphere when their efforts have been appreciated and understood are not likely to be completely justified.

Philosophic discussion may, however, isolate the focus of divergence. A study of philosophical discussions from a linguistic point of view may lead us to an understanding of our differences, although not necessarily to agreement *in attitude*. Much philosophic controversy is actually concerned not with the nature of "the real" or the "meaning of truth" or the priorities of mind or matter in the scheme of things, but with what the parties to a controversy take to be the final criteria of intelligibility of philosophical language. And these criteria are themselves not to be determined or demonstrated by either logic or sensory data. The criteria are determined in a vague sense by what James called "temperament," but more specifically by what one takes to be important.

For example, a certain aversion to the transient, an inability to feel at home in a flux, a certain striving for the permanent, accounts in large part for the dominant emphases in philosophy, from Plato to the present, as it is responsible in part for the unpopularity of Bergson and Dewey. Needs and desires antedate our thought. Rationality is a common denominator of philosophical systems; it seems to guarantee a certain objectivity and independence to our thought. But our needs and our strivings, our "temperaments" find further expression

[3] Cf. Charles L. Stevenson, *Ethics and Language* (Yale University Press, 1945).

through overcoming this impersonality and coercive character of rational thought by means of an act of will, a decision to accept as meaningful, in a semantic sense, propositions whose referents, being inferential, rather than irrefutably given, lend themselves to comforting and convenient interpretation. What a philosopher admits as a meaningful use of language depends less upon his logic and his science than upon his needs and desires.

II. My own bias is clearly empirical. I insist upon restricting the *semantic dimension* of language to experienced data, the flux of impressions and images, supplemented in a derivative sense by referents the possibility of experiencing which is testified to by competent experients or persons. Inferred entities will be interpreted in the syntactic dimension meaning, as means of facilitating prediction and control of presented data. The symbols used in such theoretical constructs insofar as they carry from their common uses a semantic reference will be interpreted semantically only if the habits of linguistic usage and habits of visualization of referents make such interpretation practically expedient. The *expedience,* however, will not be taken *as evidence* of a presumed ontological status of those referents.

Similarly, the satisfactoriness or unsatisfactoriness of a strictly empiricist criterion will not be taken as evidence for or against the justifiability of the criterion. I should not carry my pragmatism so far as to make survival a determinant of either intelligibility or truth. Though fictions may be necessary to sanity they are nonetheless fictions.

The two "unavoidable assumptions" thus far indicated, namely, (1) temperament as selective of the criteria of intelligibility, and (2) limitation of semantic meaning to referents capable of immediate presentation, when viewed in connection with the theory of language whose application was suggested as a main philosophical task, give my views a somewhat systematic character. I don't know whether I should say that my own temper inclined me to the theory of language which then implied the restriction of semantic meaning, or whether temperamental commitment to the restricted empiricism led me to the linguistic theory. They are clearly of one cloth.

III. The Linguistic Theory, however, is not an arbitrary construction. I take as a reliable hypothesis the assertion that language and

thought are the creations of biological organisms developing in social groups. Whatever other kinds of reliability and validity language and thought may have, they at least are more or less successful instruments of adaptation to, and control of, a stream of experience immediately given and exhibiting large areas of independence of human desire. Words and ideas, and our habits and rules of generalization, deduction, and prediction, are useful and reliable within the semantic dimension narrowly conceived. I see no evidence for operating on the unexamined, unproved, and in the nature of the case unprovable assumption that the competence of language and thought extends beyond that range. Yet a failure to give that evidence places non-empiricist philosophies in the status of parlor puzzles. In what sense, however, is the hypothesis about the genesis of language and thought a reliable hypothesis? Are "reliability" and "truth" equivalent? In short, what is truth?

IV. Something like what Moore calls the "naturalistic fallacy" in ethics seems to be a dominant, perhaps inevitable, characteristic of criticisms of "theories" or definitions of "truth." When other arguments are exhausted, we point out that the proferred theory or definition leads to consequences inconsistent with our common-sense version of the correspondence theory. We point out, for instance, as does Dr. Adams in his examination of Dewey's doctrine,[4] that a theory leads to the consequence that a hypothesis or judgment can be both true and false, and we reject the theory because this consequence is unacceptable in terms of our usual meanings. Within limits this is a useful approach, but it points, in this case, as Dr. Adams suggests, to something more fundamental as a test of proposed theories than mere consistence with our linguistic habits. Namely, that ". . . reasonable creatures can hardly remain satisfied with a situation that insists that the same idea in regard to the same thing is both true and false (for) they have a *need* for a definition of truth that renders such things impossible, a need affirmed by the principle of contradiction. . . ." In the same vein, C. W. Morris writes that the plight of many philosophies is "a result of the meeting of two of the deepest needs and impulses that man has shown: the desire to avoid being bamboozled,

[4] Eugene T. Adams, *The Epistemology of John Dewey* (1939), pp. 203, 204; manuscript in Colgate University Library.

expressed by attempting to put all speculation to the test of confrontation with what is talked about; and the demand for an object of devotion and of knowledge in some sense independent of and more stable than oneself as knower and actor."[5]

If the existence of such a need be granted and if, as seems to be the case, the word "truth" in the Western tradition has been an important vehicle for the expression of that need, a definition of truth must meet that requirement, as well as the requirements of logical consistency and applicability to empirical data. Meanings are inevitably three-dimensional, in the sense earlier indicated. Linguistic habits that have been adapted to the needs of on-going life situations of which data, implication, and purpose are inextricably parts cannot easily be improved by a philosophical analysis that restricts itself to one meaning-dimension. I am suggesting, in short, that philosophical controversies about meaning and truth are the result of varying emphases upon one or another of the sets of relations which constitute the meanings of ideas, judgments, words, and propositions. As Idealism and a coherence theory of truth are the outcome, in part, of attending to the formal or syntactic dimension of language and thought, so the various realisms and correspondence theories rest upon concern with the semantic dimension, and pragmatist theories are led astray by excessive concern with the purposive, predictive, functional emphasis of the pragmatic dimension of meaning. In addition, all participants in this controversy confuse the issue by failing to distinguish between "theories" and definitions. Philosophers use the term "theory" in a compound sense for which the word "doctrine" would be more appropriate, since it includes hypotheses about the essential processes of verification as well as a definition of "truth." I suggest that the distinction be preserved.

An acceptable theory regarding the process of verification and a definition of the term "truth" adequate to the data, formal relationships, and purposes with which both definition and theory must deal will therefore show affiliations with theories and definitions advanced in the schools. I can sympathize, for example, with James when he suggests that if acceptance of a hypothesis involves "satisfactory con-

[5] "Pragmatism and Metaphysics," *Philos. Rev.*, XLIII (November, 1934), 549–564.

sequences," the hypothesis is true "in so far forth," but I would add that the consequences were too few, insufficiently specified, and "so far forth" was not far enough to save the degree of truth from being trivial. I can follow James, too, when he writes, "The true is only the expedient in our way of thinking. . . ." He adds, "expedient in almost any fashion" which I would reject, and "expedient in the long run and on the whole" which I should extend to mean the infinitely long run and completely, without the exceptions admitted by the phrase, "on the whole." I can agree with realists in taking verifications of predicted consequences as evidence of the probable truth of hypotheses, although not, as Dewey would insist, as constituting it. I would add that these verifications are evidence of truth, not in the realists' sense of evidence of a correspondence different from the verifications, but in a somwhat non-Deweyan pragmatic sense of being evidence of truth through being part of it while not exhausting it. I can agree with the idealists in defining the truth value of an idea to consist in part in its consistency or coherence with a system of ideas, the qualification being that these ideas be, not images or sense data which simply are and hence are outside the truth dimension, but ideas which are predicative in the sense of implying, propositionally or otherwise, consequences which have been realized. Lastly, I would accept the pragmatic view that truth is constituted by verifications but would qualify this to mean that the proposition " 'x' is true" is strictly identical with the proposition "consequences a, b, c to infinity implied by 'x' have occurred."

A definition of "truth" must satisfy two main needs: it must take into account *all* of the tests we apply before giving a proposition the accolade of "truth," and, secondly, it must provide the standard of absolute truth that common-sense usage, our need of such intellectual moorings, and at least all nonpragmatic theories seem to involve. The deficiencies of pragmatism arise largely from its failure to provide a definite goal, a standard of truth, which while *not* functioning as an *actual terminus* of inquiry may yet be thought of as an *ideal limit* of inquiry. On the other hand, the deficiencies of realist and idealist theories result largely from their failure to deal, respectively, with the syntactic and semantic dimensions of thought and language and hence of the operations of actual verifications.

This latter difficulty stems in part from an oversimplified view of the semantic meanings (and the propositions embodying them) that are candidates for truth status. Philosophers are prone to select propositions about chairs, gold coins, etc., as the subject matter of an empirical inquiry into the processes of verification or as examples to illustrate a theory of truth worked out in a priori fashion. The candidates for truth status, however, are more numerous and more varied. One may imagine a continuous series of such candidates differing in the degree of complexity of inference involved between the referent and the presentation of an individual knower. Propositions such as "I feel a pain," "I felt a pain," "I have a toothache," and "I see a piece of cheese" exhibit a *decreasing* directness or immediacy in the observations essential to their verification. "A chair was in this room yesterday," "Steve owns ten Chippendales," and "The earth is an oblate spheroid" require more extensive verificatory deductions and observations, while "This disease is caused by a bacillus," "The other side of the moon is volcanic," and "Matter is composed of molecules having some of the properties of billiard balls" are yet more indirect. They have in common this factor, the factor that makes them semantically meaningful from an empiricist point of view, namely, as formulated, the verificatory procedures required are such that the consequences predicted are all *potentially experienceable* by the senses or by *introspection* and can be verified when those experiences are understood with the least possible interpretation, are understood as data insofar as the interpretive elements in perception can be eliminated.

From this point of view, one realizes that controversies regarding theories of truth have been inconclusive in large part because the theories constructed were designed to deal with individual items of this continuous series of candidates, with excessively narrow segments of the series, or with an inadequately representative sampling of its members. Pragmatists select Heisenberg's Principle of Indeterminacy as an occasion for demonstrating the inadequacy of realists' theory, while realists select propositions about gold coins or toothaches from the other end of the series to expose the inadequacies of pragmatic doctrine. When a realist feels the reasonableness of pragmatic treatment of complex problems of verification in physical theory

he retreats to the obvious simplicity of the problem of verifying propositions involving direct observation. When a pragmatist feels the reasonableness of the realists' analysis of the process of verifying propositions about pains, he regains consistency by legislating that example outside the problem by calling it a case of perception rather than knowledge, and hence one to which truth is irrelevant.

Both definitions are illuminating. And I think that a suggestion of Peirce's gives the clue to the resolution of the realist-pragmatist controversy. The suggestion, namely, that an absolutely true proposition is one of which *all* of the implied empirical consequences shall have been realized through the immediate experience of reliable observers. Every proposition approaches truth insofar as we have grounds for accepting the realized consequences as a representative sample of the conceivable consequences. The ideal of an absolute truth then performs a function similar to that of the physical concepts of absolute zero and complete elasticity, which, while unattainable, provide a standard in terms of which comparisons can be made. This suggestion is certainly far from revolutionary, but it has interesting possibilities.

First: in terms of such a use of the adjective "true," the substantive form "truth," if we insist upon using it, can be said to consist of that group of verifications which would range from one in number to infinity.

Second: the inadequacies of pragmatic doctrine that stem from its failure to specify *which* consequences are avoided, for within this usage one can follow James in saying that "in so far forth" the proposition is true.

Third: the realists' insistence that something other than particular verifications are necessary is met, for we take our proposition to be true only *to the extent* that the possible consequences have been exhausted. Hence, in most cases there will always be *something beyond* the consequences already met, in terms of which our judgment of the proposition's truth may be modified, that is, reversed.

Fourth: we can conform to common usage in saying that *"as far as we know,"* a proposition is true, the something more that might be known in the future being the *remainder of the conceivable consequences* rather than some *special* consequence which gives us insight

into the absolute correspondence of the proposition and a state of affairs.

Fifth: our apparent need for an absolute in this area, a need which we suggested was as reasonable a criterion of a definition as were logical consistency and empirical applicability, is met. While the realists meet this demand by affirming the existence of a correspondence in addition to the verifications which are evidence of it, we can operate satisfactorily with this ideal of complete verification as the objective which gives our particular verifications significance.

Sixth: this usage can apply equally well to all members of the series of candidates for truth status suggested above. The consequences of a proposition about pain can be exhausted with the realization of one consequence, namely, I feel a pain. All other members of the continuum, being concerned with referents other than simple data or sensa, require increasingly numerous verifications to justify giving the truth value of the proposition a comparable status, and in some of them this goal can never be reached. We can only say again "as far as we know." Scientific "laws" are all at this stage, and most scientists are ready to admit it.

Last: the use does justice to the pragmatic component of truth value. Although the number of verifications we require before calling a proposition true may be in a sense arbitrary since it will be some selected point between one observation and perhaps an infinite number, it takes account of the fact that in everyday and scientific usage the degree to which we are willing to rely upon a given proposition is a function of our purposes.

To summarize: I find four dominant assumptions in my own thinking; namely, (1) that considerations other than logical or empirical determine the course of philosophical inquiry; (2) that my own bias is broadly empirical along the lines of George Mead's and John Dewey's; (3) that the theory of language which is central to the study of philosophical problems is not a postulate but a reliable hypothesis; and (4) that the truth of a proposition can fruitfully be defined as an ideal limit consisting of the totality of its realized empirical consequences. The conception of philosophy that these assumptions involve leads me to view the philosophic enterprise as consisting of: (1) the exploration and clarification of the dimensions of thought and lan-

guage as these are exhibited in learned, practical, and social contexts; (2) the construction of speculative, though empirical, comprehensive hypotheses; and (3) meeting the urgent obligation to bring to bear upon our knowledge and our actions an informed concern about the effect of both on the value dimension of human life.

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DISCUSSION

AN EXAMINATION OF TWO INCONSISTENCIES IN ARISTOTELIAN LOGIC

IN RECENT YEARS, there has been a great deal of discussion concerning the validity of classical logic. Two inconsistencies in Aristotelian logic have been set forth by F. S. C. Northrop and by C. I. Lewis. This paper is an attempt to analyze these inconsistencies, to see why they arise, and to what extent they nullify traditional logic.

I

The inconsistency shown by Northrop[1] involves the relationships between several propositions from Jevons' *Lessons in Logic,* p. 303 (the numbering is from Jevons and is followed by Northrop; Proposition 15 is an addition to the list given in Jevons).

(1) All just acts are expedient.
(4) All inexpedient acts are unjust.
(5) Some unjust acts are inexpedient.
(15) All unjust acts are expedient.

(Inexpedient is taken to mean not-expedient, and unjust to mean not-just.) On the face of it (1) and (15) do not appear to be contradictory, yet (1) implies (4) by contraposition, and (4) implies (5) by conversion by limitation, and by the rule of the syllogism (1) therefore implies (5). By obverting (5), an o proposition is obtained contradicting (15). But, is there any reason why (1) and (15) cannot be compatible?

[1] "An Internal Inconsistency in Aristotelian Logic," *The Monist,* XXXVIII (1928), 193–210.

The inconsistency presented by C. I. Lewis[2] shows that from a proposition stating a true fact, we can, according to Aristotelian logic, derive a proposition contrary to fact. (Both C. I. Lewis and R. M. Eaton, who also discusses this inconsistency, realize that this is only an inconsistency in a particular interpretation of Aristotelian logic which we will examine shortly.)

"No A is B" implies "No B is A" by simple conversion.

"No B is A" implies "All B is not-A" by obversion.

"All B is not-A" implies "Some not-A is B" by conversion by limitation.

"Some not-A is B" is the partial inverse of "No A is B," and by the rules of the syllogism "No A is B" implies "Some not-A is B." Now suppose that A is "mathematician" and B is "one who has squared the circle." Then, "No mathematician is one who has squared the circle" implies "Some nonmathematician is one who has squared the circle."

Now let us examine each of these two inconsistencies to see where the difficulty lies, and how it can be overcome. In order to make clear what happens when we go from step to step, I will use a symbolic interpretation of the propositions which is occasionally used to illustrate Boolean algebra. A and B are interpreted as circles which intersect, and the four propositions of Aristotelian logic are interpreted as making assertions about which circular sections are devoid of members and which have members. The presence of a member is indicated by stating that the section is 1, the absence of members by stating that the section is 0. The negates of terms are represented by a – before the term. AB represents the common section of the two circles, A–B represents the section of A outside B, –AB represents the section of B outside A, and the –A–B represents the section outside of both circles. Thus the four Aristotelian propositions will be represented as follows:

A	All A is B	A–B=0, AB=1
E	No A is B	AB=0, A–B=1
I	Some A is B	AB=1
O	Some A is not B	A–B=1

(assuming, of course, as usual, that the subject term in Aristotelian logic always implies existence).

One proposition is derivable from another if every mark (1 or 0) in the former appears in the latter in the same section. Two proposi-

[2] *Survey of Symbolic Logic* (Berkeley, 1918), p. 186 ff.

tions are in conflict if a 1 appears in a section in one, and the same section of the other is 0, or vice versa. Thus we can see that the A and O are in conflict, as are the E and I and the A and E.

Now let us state Northrop's propositions in these symbols. (Just acts=A; Expedients=B.)

(1)	All just acts are expedient All A is B	A–B=0, AB=1
(4)	All inexpedient acts are unjust All not-B is not-A	–BA=0, –B–A=1
(5)	Some unjust acts are inexpedient Some not-A is not-B	–A–B=1
(15)	All unjust acts are expedient All not-A is B	–A–B=0, –AB=1

Thus we can see, according to the symbolic interpretations, that (1) and (15) are not in conflict, since they make no conflicting statements about the same sections. Also, we can see that (5) is in conflict with (15), while (5) is derivable from (4) (the order of A and B is immaterial in this interpretation). However, (4) is not derivable from (1). Now let us analyze the steps involved in contraposition to see why (4) cannot be derived from (1).

All just acts are expedient	A–B=0, AB=1
All A is B	
No just acts are inexpedient	A–B=0, AB=1
No A is not-B (obversion)	
No inexpedient acts are just	–BA=0, –B–A=1
No not-B is A (simple conversion)	
All inexpedient acts are unjust	–BA=0, –B–A=1
All not-B is not-A (obversion)	
Some unjust acts are inexpedient	–A–B=1
Some not-A is not-B (conversion by limitation)	

Thus we see that the simple converse of the E proposition is not derivable from "No A is not-B" while all the other steps are legitimate.

Now let us examine C. I. Lewis's propositions.

No A is B	AB=0, A–B=1
No mathematician is one who has squared the circle	
No B is A	AB=0, B–A=1
No one who has squared the circle is a mathematician (simple conversion)	
All B is not-A	AB=0, B–A=1

All who are ones who have squared the circle are not-mathematicians (obversion)
Some not-A is B —AB=1
Some not-mathematicians are ones who have squared the circle (conversion by limitation)

The conclusion is derivable from "No B is A," but not from "No A is B."

So, in both of our illustrations of the inconsistency in Aristotelian logic, the procedure of simple conversion of an E proposition is illegitimate. In simple conversion we assert that there is a member in a different class than that asserted in the original statement.

If simple conversion is an illegitimate process, then many of the procedures in Aristotelian logic are invalidated since they are dependent on this elementary process.

II

In Northrop's article, he tries to resolve the difficulty by using the Boolean meaning of the four Aristotelian propositions, which would be symbolized in our terms as follows:

A	All A is B	A–B=0
E	No A is B	AB=0
I	Some A is B	AB=1
O	Some A is not B	A–B=1

On this meaning of the four propositions, a particular is not derivable from a universal. Contraposition becomes a legitimate procedure since simple conversion is legitimate. However, the O proposition, "Some unjust acts are inexpedient," is not derivable from the A proposition, "All inexpedient acts are unjust."

On this interpretation, Northrop's propositions (1) and (15) are not in conflict. However, this way of avoiding the inconsistency in Aristotelian logic which Northrop presents invalidates another basic procedure in classical logic, that a particular is always implied by a universal. This would in turn invalidate many moods of the syllogism and conversion by limitation.

R. M. Eaton, in analyzing the causes of Lewis' inconsistency, points to the same resolution. He says, "In judging the validity of immediate inference, we must reckon with two further factors, classes that have no members, and the possible interpretation of universal propositions

as hypothetical. These two are really the same."[3] If classes do not have members then a universal does not imply a particular.

If Aristotelian logic does not allow empty classes, then its range is severely limited. Newton's first law, Eaton points out, involves an empty class. However, if empty classes are allowed, then a great many accepted procedures of traditional logic are invalidated.

Both of these inconsistencies can be resolved by using the Boolean meaning of terms instead of the Aristotelian. But, as both Northrop and Eaton realize, this would seriously limit the operations in classical logic, while it would greatly extend its field of operations.

A second solution offered by Northrop and Eaton is to give a stronger interpretation of Aristotelian logic, with instances of all terms, not just the subject term. On this interpretation, in order to account for obversion, we would also have to have existential import for the negates of the subject and predicate terms. This strong meaning is represented as follows in our symbols:

A	All A is B	A–B=0, AB=1, –A–B=1, (B–A and AB)=1
E	No A is B	AB=0, A–B=1, B–A=1, –A–B=1
I	Some A is B	AB=1, –A–B=1, (AB and B–A)=1
O	Some A is not B	A–B=1, –A–B=1, (AB and B–A)=1

On this interpretation,[4] an E proposition can be converted simply, and a universal implies a particular (or in my terminology a particular is derivable from a universal.) The problem of the empty class is avoided, since no empty class can be stated. Thus Lewis' inconsistency is removed. Northrop's inconsistency is changed to one where proposition (1) is in conflict with proposition (15). (J. W. Miller offers a system in which only the universals are nonempty.)[5]

Besides preserving all the procedures of Aristotelian logic, this interpretation has the further advantage of seemingly representing the meaning of Aristotle and the other great classical logicians before Boole.[6]

Eaton indicates that this interpretation was the one held by the classical logicians. "Classical logicians failed to provide for the contingency of empty classes. The importance of a null-class was only realized with the development of the algebra of classes, with the treat-

[3] Ralph M. Eaton, *General Logic* (New York, 1931), p. 212.

[4] W. E. Johnson (*Logic* [Cambridge, 1921], Part I, pp. 139 ff.) discusses this at length.

[5] *The Structure of Aristotelian Logic* (London, 1938), p. 87. The stronger interpretation is presented on p. 89.

[6] Federigo Enriques, *The Historic Development of Logic* (New York, 1929).

ment of class relations in quasi-mathematical form."[7] (There has been some discussion as to whether or not an empty class is the same as a null-class. It will be seen that any such distinction is irrelevant to this article.)

Thus, apparently, Aristotelian logic seems to have been saved from the charge of inconsistency. The defenders of classical logic could even turn on their opponents and declare that the symbolism which I have used is illegitimate, since it contains null-classes, thereby prejudging the issue. If the traditional Euler diagrams had been used instead, no difficulties would have appeared. In this diagram system, A and B are again represented as circles. In the A proposition, circle A appears inside circle B, so that there is no empty section of circle A. The E is represented by two circles which do not intersect, the I and the O as intersecting circles. In this system the simple conversion of the E is legitimate, and a universal implies a particular. No empty classes can be diagramed.

The universal propositions represent limiting cases of particulars. The A proposition is the limiting case when all of circle A is included in B, and the E represents the limiting case when the common sector of circles A and B vanishes. We might insist that this is the same as stating the A and E in our symbols of the strong interpretation, and that Euler's diagrams are unwarranted in view of his representation of the particular propositions. However, with the strong interpretation of Aristotelian logic, this would make little difference, except that it would force the proponents of classical logic to admit that their system allowed for the possibility of an empty class.

However, up to this point, it appears that we have found no real inconsistency in Aristotelian logic. The only inconsistencies that we have found are those which occur when we *misinterpret* Aristotelian logic. It remains to be shown that this strong interpretation is not adequate to avoid inconsistencies unless we limit classical logic to a point where its use is far too restricted to handle the terms of modern science.

III

Northrop raises the following objection to the strong interpretation of terms in Aristotelian logic. "There is no doubt that if rules of immediate inference were used with these presuppositions there would be no internal contradiction. . . . Furthermore, such an interpreta-

[7] Eaton, *op. cit.*, p. 215.

tion would make immediate inference from it unnecessary. One would know so much when one asserted a universal that methods of inference enabling one to determine what it implies would be entirely gratuitous."[8] There are two charges here, one of too much required knowledge, and the other that that much knowledge makes immediate inference unnecessary.

Do we actually have as much knowledge as the strong interpretation of Aristotelian propositions requires? In most cases we do. In simple statements like "All cats are mammals," we know the existential import of cats, noncats, mammals, and nonmammals. But in science and social science there are many propositions in which there are terms whose existential import we do not yet know, e. g., "Mountains exist on the back side of the moon," "No integers are solutions of $x^n+y^n=z^n$, where n is an integer greater than 2," "All numbers of the form $2^{2^n}+1$, where n is equal to or greater than 9, are incapable of being expressed in the decimal system within a century." It might be argued that we know the meaning of all the terms and can give them and their negates existential import. But, if this is the case, then "palm trees in Alaska," "people who have squared the circle," etc., have some sort of existential import. This would reintroduce the inconsistency which Lewis pointed out.

On the other hand, the supporters of Aristotelian logic could reject all my examples and restrict logic to cases where we actually know of concrete examples. This would eliminate, if taken in a strict sense, terms like "electron," "particles with a diameter of 10^{-26} centimeters," "stars more than 1,000,000 light years away," etc., but it would make Aristotelian logic consistent. Unless scientists and mathematicians could define their terms so that they had concrete existential import, they could not employ Aristotelian logic.[9]

Northrop's second charge seems to have some justification. If we know what "cat," "noncat," "mammal," and "nonmammal" mean concretely, do we need immediate inference to tell us that if "all cats are mammals," then "all nonmammals are noncats"? The Aristotelian logician could say that the obviousness of inferences made no difference, that we are indicating the logical steps taken in the inferences. We can see various ways in which terms may be placed, and the logical steps involved in so placing them. Thus, although the strong inter-

[8] Northrop, *op. cit.*, p. 207.

[9] J. W. Miller points out that Aristotelian logic can consistently be considered as an intensional system, but then it would have to be shown that these "classes have possible members" (*op. cit.*, p. 91).

pretation seems to have nullified immediate inference as a source of new information, it still leaves some use for the procedures.[10]

Even though we may feel that this strong interpretation leaves logic too pale for our needs, we have not shown that it is inconsistent. As long as all terms and their negates have concrete existential import, then all the procedures are valid. However, it can be shown that this strong interpretation necessarily leads to empty classes, from which we can demonstrate inconsistencies like Lewis', or else it nullifies practically all the uses of logic. Also, this strong interpretation destroys one of the most fruitful methods of demonstration which science has.

Using the strong interpretation, if "No A is B," then "A and B" is an empty class. If "No United States general is female," then "female United States general" is an empty class, and from "No Bostonian is a friend of a female United States general," we can derive "Some non-Bostonian is a friend of a female United States general." The defenders of Aristotelian logic could claim that just because there is concrete existential import to "female" and "United States general," there does not have to be concrete existential import to "female United States general." Thus, in classical logic, it is easy to uncover empty classes, even if they are not admitted as terms.

However, the adherents of Aristotelian logic have a serious difficulty when they come to necessary propositions. (The use of so-called necessary propositions does not mean that I claim that they are in fact necessary. I am using propositions which some philosophers have claimed to be necessary.) If "All events are caused," then "No event is uncaused." This means that there must be concrete existential import to "uncaused." We can then derive "Something uncaused is a nonevent" and "Some nonevent is uncaused." The usual reason given for the necessary truth of "All events are caused" is that the contradictory is unthinkable, or is self-contradictory. Since "event," "nonevent," "caused," and "uncaused" all must have concrete existential import, then "All events are uncaused" is thinkable, though false. "No philosopher knows of something that is uncaused" implies that "Some nonphilosopher knows of something that is uncaused." Since the original statement is admissible in a strong interpretation of Aristotelian logic, the ridiculous conclusion must also be. The proposition

[10] It might be claimed that I have been discussing only simple cases, and that immediate inference aids us in complicated. If this were true, it would mean that we did not know existentially what we were talking about.

"All terms in Aristotelian logic have existential import" implies concrete existential meaning to "nonexistential import" and allows us to use it as a term in this logic. Thus, "nonexistential import" has existential import.

To carry this further, if we know what is meant by "mortal," so that we can assert that "all men are mortal," then we must know of a concrete existential meaning to "immortal," we must know of instances of "immortal." If terms like "material," "imperfect," "finite," and "uncertain" are admissible in Aristotelian logic, then we must know of instances of "perfect," "infinite," "certain," "immaterial." Our own finitude or imperfection immediately leads us to an infinite, perfect Being whom we must know in order to assert our finitude and imperfection initially. This means that in order to make metaphysical statements using terms like those above, we would have to know the concrete existential import of "perfect," "infinite," etc., or else we would not be able to discuss them in Aristotelian logic.

The adherents of classical logic are faced with a choice at this point. They either have to claim that they know too much or too little. If they knew as much as would be required, then necessary knowledge would be destroyed, since its contradictory would have to be thinkable. Then from "All knowledge is uncertain" we could derive "Some certain things are not knowledge"; from "All living things are made of matter and spirit" we could derive "Some nonliving things are not made of matter and spirit;" from "No philosopher knows of anything that is not either matter or spirit or both" we could derive "Some nonphilosopher knows of something that is not either matter or spirit or both." Every universal, "All A is B" or "No A is B," would lead beyond itself to "Some non-A is non-B" or "Some non-A is B" where all terms and their negates would have to have concrete existential import, even in cases where A or B is supposed to include the entire universe. If the adherents of traditional logic took the second course, they would have to eliminate terms like "caused," "finite," etc., since they would not know if the negates of these terms have existential import. This latter course makes it impossible to discuss most of the points in traditional philosophy using Aristotelian logic. The former course makes necessary propositions unnecessary and leads to inconsistencies of the kind that Lewis points out. To prevent these inconsistencies, classical logic must be further limited.

Thus, to safeguard Aristotelian logic from an inconsistency, we were first forced to give up most of the concepts of science as valid terms,

and now we are forced to give up most of the concepts of philosophy as valid terms. We are left only with terms of which we know the existential import of both the terms and their negates. This is not the same as saying that classical logic is restricted to the denotative meaning of terms, since we would still have to know the meaning of the negate of a term denotatively given. Even if we knew what the denotative meaning of "finite" was, we could only use the term if we also knew the denotative meaning of "infinite."

This strong interpretation of Aristotelian logic invalidates many propositions in Euclid's *Elements,* which is supposedly the shining example of the application of classical logic. Proposition 2 of Book XII, one of the most important theorems in Greek mathematics, is no longer valid. It states that "Two circles are to each other as the squares on their diameters." It is proved by showing that if this is not the case, then circle A is to some other figure Q as the square on diameter A is to the square on diameter B, where Q is greater or less than, but not equal to, circle B. The class of figures Q meeting these conditions is then shown to be empty since there can be no possible instances of it. Thus, that class cannot be a term in Aristotelian logic. (If it is admitted as a term, then "No mathematician is able to find a figure Q meeting the above conditions" implies that "Some non-mathematician is able to find a figure Q meeting the above conditions.") This difficulty will be true of all proofs by a *reductio ad absurdum* argument, where the other possibilities are shown to represent empty classes.

In addition, this strong interpretation does not solve Northrop's inconsistency, since it shows that his proposition (1), "All just acts are expedient," implies legitimately the contradictory of "All unjust acts are expedient." In all cases, "All A is B" conflicts with "All non-A is B," which is not what a logician would desire to prove. "Euclidean geometry is consistent" will conflict with "Non-Euclidean geometry is consistent"; "All Europeans are mortals" will conflict with "All non-Europeans are mortals." Even if non-A is taken to mean everything which is other than A, Northrop's inconsistency will be valid. The all-inclusive meaning of negation will require that when one asserts a term, one will have to know the existential import of the term and its negate, which is the whole universe. In using immediate inference we would constantly be forced to know the meaning of "the universe minus one term." No *reductio ad absurdum* proof could be possible, since the negate of terms like "odd," "equal," etc., would all

be the universe minus one term instead of "even," "unequal," etc. This meaning of negation just makes it more difficult to find illustrations of Northrop's inconsistency, while making the strong interpretation unmanageable. However, "All tables are either material or immaterial" will conflict with "All nontables are either material or immaterial," which neither a materialist nor an idealist would wish to be the case.

The only way to avoid Northrop's inconsistency is to give up most of the procedures of Aristotelian logic, as was shown in Section II. The strong interpretation, which is the only one in which the procedures of immediate inference are valid, makes "All A is B" conflict with "All non-A is B." This only lessens the use of classical logic, since it is only advantageous in cases where we do not care if two such propositions conflict.[11]

Lewis' inconsistency is only removed by so limiting the content which propositions can have as to eliminate most of the uses of Aristotelian logic in science and philosophy and by destroying the *reductio ad absurdum* argument. Thus, those who use traditional logic most would be barred, in the main, from using this strong Aristotelian logic.

Thus, although these two inconsistencies do not invalidate classical logic, we must restrict its field in order to resolve them. This restriction makes traditional logic inadequate for present-day needs. The developments in mathematics, mathematical physics, and logic, in the past hundred years, have led to the investigation of the traditional procedures and have found them wanting. This does not show that classical logic is false (J. W. Miller offers a very interesting proof that it meets the modern criteria for consistency),[12] but it does show that it is limited. As a logic, its value is more for its historical significance than for its functional role today. It is certainly unfair to say, as Bertrand Russell does at the conclusion of his chapter on Aristotelian logic in his *History of Western Philosophy*, "I conclude that the Aristotelian doctrines with which we have been concerned in this chapter are wholly false, with exception of the formal theory of the syllogism, which is unimportant. Any person in the present day who wishes to learn logic will be wasting his time if he reads Aristotle or

[11] A very interesting defense of this limited Aristotelian logic, with the two propositions being in conflict, appears in A. Ushenko, "Note on the Inconsistency in Aristotelian Logic," in *The Monist*, XLII (Chicago, 1932), 319–320.

[12] J. W. Miller, *op. cit.*, pp. 84–91.

any of his disciples."[13] It is fair to say that Aristotelian logic is inadequate as a substitute for the modern logics, and that adherents of classical logic have used it in fields in which it could not legitimately be applied without making valid the inconsistencies which have been discussed above. It is also fair to say that classical logic, as a consistent system of procedures, is much too limited in its field of operation to be of aid in most of the logical needs of today.

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[13] *A History of Western Philosophy* (New York, 1945), p. 202.

OBSERVATION AND INTERPRETATION IN SCIENCE[1]

WHITEHEAD SAYS in *Modes of Thought:* "The notion of a mere fact is the triumph of the abstractive intellect. . . . No fact is merely itself." On the other hand scientific methodologists are fond of insisting that if scientific method does anything it sticks to the facts. If pressed, or if the methodologist is more analytic, he is apt to say that science begins with sense data. The implication is that "facts," whatever they may be, are resolvable into or defined in terms of sense data.

The word "fact" has been used ambiguously. Sometimes it is used to mean a true proposition *expressing* a "matter of fact" or "the case" or, in experimental terminology, an experience. The word "fact" as used in this sense is taken to denote a species of proposition.[2] It is first of all a "*true* proposition," i.e., it expresses what actually is the case. For example, the proposition "the sun is now shining" is a "fact" since it actually is now shining (now being 11:13 A.M., February 27, 1946), and hence the proposition is *true*. And secondly the *fact* is the proposition itself. In other cases the word "fact" is used to denote not the proposition but the state of affairs referred to in the proposition. This state of affairs is perceived by the observer who then uses symbols to "embalm" it for future reference. Using the terminology of semantics, the first meaning of "fact" is expressed by the proposition in quotations, while the second meaning is expressed by the proposition alone. "The sun is shining" is the fact in the first case, while in the second case "The sun is shining" expresses the fact. A third meaning of the word is found occasionally and is emphasized, for example, by Sellars. In the *Philosophy of Physical Realism* he de-

[1] This paper with minor modifications was read to the meeting of the Southern Society for Philosophy and Psychology, at Charlottesville, Virginia, April 19–20, 1946.

[2] Cf. M. R. Cohen, and E. Nagel, *Introduction to Logic and Scientific Method*, p. 392.

fines a fact as a "bit of knowledge." In other words propositions express the knowledge possessed by the knower, and it is this knowledge which is the "fact." In one sense the definition of the word "fact" is relative to the task at hand. A purely theoretical physicist may insist that his "facts" are the propositions; more naïve individuals usually mean by facts what is the case; and often we refer to an individual as having a great many "facts" in the sense of "bits of knowledge." It is evident that the three aspects of the meaning situation, i.e., the symbol, the knower, and the known, are involved here. "Fact" is then predicated by various authors of that aspect of the meaning situation which they view as of primary importance in the pursuit of knowledge.

From the point of view of the practicing scientist it seems to be possible to say that facts are what are given in experience — especially in sense experience. The practicing scientist does not examine the nature of his symbols when he is seeking facts, nor does he carry through a program of introspection at such times. Scientists seek their facts through constant observation. The constant appeal to observation would seem to indicate that facts are the results of observation and of observation alone. Since it is widely agreed that science does begin at least with sense data, the positivist's insistence on the reduction of observation to sense data has a great deal of justification. But that sensation alone is not sufficient to give us facts is also widely admitted. As Cohen and Nagel say, sensation alone sets the problem and is not the solution of the question "What are the facts?"

There are two meanings of the question "What are the facts?" Most textbooks of logic and scientific method raise this question preparatory to a discussion of the role of hypotheses in scientific method. They point out that the question "What are the facts?" really means "What are the facts relevant to this particular problem?" In other words, how are we to select from all possible facts those which are pertinent to the solution of the problem in hand? Facts, claims Dewey, are existential. The implication seems to be that the facts are all about us in related groups, and all we need do is select by means of a directing idea, those which bear on our problem. If we restrict ourselves to facts gathered by sensory observation, it may not always be clear just what the fact itself is. Even where we have a directing idea (hypothesis) which conditions and aids our search for facts, there may still remain an ambiguity as to the nature of the fact. In other words, how do we know what we observe, when we observe? This is

the second meaning of the question "What are the facts?" To state the problem once again, if facts are what is known, what *is* it that is known? The problem can best be approached through a variety of examples. These are taken from the sciences involving observation of phenomena which are ordinarily conceived as different from the activity of the observer.

Consider the two propositions:

(1) The sun is shining.
(2) It is a fact that the sun *is* shining.

The first proposition has a meaning which may be reduced to potential sensory experiences. The meaning of the first proposition is the same regardless of whether or not the sun is actually shining. The second proposition goes further and affirms that the potential experiences are actual. The second proposition seems to affirm that "the sun is shining" is the case. How can we determine whether or not it is the case. The obvious answer seems to be "Look and see," i.e., get observations. But let us examine more closely what is meant. Since we never can experience the sun *except through our sensory* organs, the proposition "the sun is shining" can refer only to the potential set of observations. "It is a fact that the sun *is* shining" can only mean, then, that the set of observations which I now get are the set of observations anticipated by the proposition "The sun is shining." Suppose we examine the set of observations. On a strictly empirical basis, the description of what I mean when I say "It is a fact that the sun is shining" goes like this. "I have a sensation of brightness. I have a sensation of warmth, etc." I may go further and say that the sensation of brightness is intense and somewhat painful. But where is the sun shining? To be rigorously and rigidly consistent, I could say that the expression "The sun is shining" is merely a name for this particular set of perceptions. However, many epistemologists (e.g., Ledger Wood in his *Analysis of Knowledge*) would insist that these perceptions have a vectorial character pointing to something beyond themselves. In that case it would be necessary to affirm that "the sun is shining" is rather an *interpretation* of our perceptions in terms of a set of categories referring to objects. What we say we know refers to something other than sense data, yet is an interpretation of these sense data. The possibility of other interpretations of the same sense data remains open. All interpretations, however, are based upon the system of categories used by the observer. Kant had recognized this very clearly.

Let us take a more complicated example. Consider the two propositions:

(1) There is a shift toward the red in the given spectrum.

(2) The nebula Andromeda is receding from us.

Proposition (1) records an observation on an arrangement of colors. Proposition (2) purports to report an event occurring in actual space and time. At the same time Proposition (1) (if the spectrum is of the light from Andromeda) is said to affirm a fact which indicates or is the result of the fact stated in Proposition (2). There is also implied the universal proposition of spectral analysis:

(3) "If the distance between an observer and a source of light is increasing, the lines in the spectrum of the source are displaced toward the red, while if the distance is decreasing the lines of the spectrum are displaced toward the violet, the displacement being proportional to the velocity."[3]

The complex relation between observation and interpretation is clearly indicated. As a matter of fact, it appears that observations are interpretations or are based upon interpretations and have no unique status of their own. The proposition (3) of spectral analysis involves from a purely empirical point of view the observation that an entity E has moved from P to P_1, and that a set of lines L have moved from R to R_1. Note that the correlation of L and E as well as the correlation of $R–R_1$ with $P–P_1$ are not observations but interpretations. Only an extremely naïve outlook would insist that all we have done is to have "observed." In this case the interpretation is much more important than the observation. If we return to Hume, we will be compelled to go on to Kant. How are these interpretations possible? But to resume our descriptions.

Propositions (1) and (3) would lead us to infer that the distance between a given source of light (Andromeda) and the astronomer is increasing. Andromeda is but a white blob on a photographic plate. The important thing for us to notice here is that we do not *observe* the recession of Andromeda; we *infer* it from our interpretations of the spectral lines and the photograph. "Get the data"—but what data? Surely the spectral shift is not Andromeda receding; yet we cannot observe the actual recession, so vast are the distances. It is not merely a question as to the relevance of the facts but as to the very facts themselves. Only when one approaches the spectroscope with a conceptual apparatus for the interpretation of the sense data derived from

[3] E. A. Fath, *The Elements of Astronomy* (New York, 1944), p. 141.

it, does the spectral shift take on significance and come to be referred to the motion of the nebula in space. The proposition asserting the existence of a red shift is vastly simpler than that asserting the recession of Andromeda. Proposition (1) involves the interpretation of successive sense data as a "shift." Proposition (2) involves: (A) the interpretation of a photograph, (B) the interpretation of the spectrum, and (C) the correlation of the spectrum with the photograph. At no point do we appear to have facts based on the direct observation of Andromeda whatever that may mean. Empirically to observe Andromeda directly would be a difficult performance. If we relied upon observation alone the "facts" about Andromeda, as for example, its structure, chemical composition, radial velocity, etc., would never be revealed. What we know about the distant heavenly bodies is obtained through the interpretation of data, not of facts.

What we are trying to point to is perhaps well illustrated in the shift from Ptolemy's geocentric hypothesis to Copernicus' heliocentric one. It is well known that Ptolemy posited the earth as the center of motion of the planetary system and considered the earth to be motionless, while the planets revolved around it. Copernicus, for one reason or another, decided to take the sun as stationary and considered the earth to be in motion around it. What is perhaps not so well known is the fact that Ptolemy in the Almagest considered the possibility of the motion of the earth but rejected it on *empirical grounds*.[4] According to Ptolemy, the observations show the earth to be stationary and the sun and planets to be in motion; according to Copernicus the same observations indicated that the sun is stationary and the earth revolves around it. What are the facts? In this case, it appears that both Ptolemy and Copernicus observed the same "facts." These are simply the changed orientation of the sun from the earth. In no way can we "observe" the motion of the earth and the sun. With relativity notions, we more easily understand the equal validity on a purely observational basis of both hypotheses. Ptolemy, choosing the earth as point of reference, *interprets* the facts to mean that the sun goes round the earth; Copernicus choosing the sun as point of reference interprets the facts conversely. Ptolemy's conceptual system based on Aristotelian metaphysics inspired his interpretation; Copernicus (if history tells us correctly) reoriented his conceptual system because of his reading of the Greek mathematicians. The choice between the two systems is not determined by observations so much as by "ease" and

[4] Cf. my note on Ptolemy and scientific method, to appear in *Isis*.

"elegance" — two characteristics of interpretations and not of facts.

Any "fact" is the result of our interpretation of sense data by means of a conceptual system. These sense data may arise from the direct stimulation of our sensory apparatus, in which case their interpretation involves the process of perception, or they may arise from the stimulation of our sensory apparatus by symbols, signs, or the operations of varied types of apparatus. By sense datum we mean what is given as a result of the stimulation of our sensory organs. A sense datum pure and simple remains what it is and cannot be a fact. It becomes a fact, relevant or irrelevant, when it is given significance through its interpretation by means of a conceptual system. It is possible, therefore, for the same object to give rise to different facts because it gives rise to sense data which are interpreted by means of different conceptual systems. We have arrived at a result that sounds paradoxical — the sense data are the same, but the facts are different. The identity of the sense data in two separate individuals is an inference based upon similarity of the physiology of sense organs and the presumed identity of the object. We need not analyze this here. The same individual can and often does interpret his sense data differently.

Recent developments in systematic psychology amply illustrate the role of interpretation in that science. Consider the categorical schemes of, say, Lewin, Tolman, and Hull. The field theoretic approach of Lewin with its concepts of tensions and regions gives rise to interpretations different from the purposive behavior of Tolman's system and the symbolic constructs of Clark Hull. The "same" behavior pattern gives rise to variety of facts, each clothed in the conceptual apparatus of a specific interpretative schema. The topologists see quasi-mathematical patterns; Tolman speaks of behavioristically defined goals which he calls "end-states"; Hull describes and discusses obvious gross behavior patterns and reverts to the techniques of algebraic equations, using concepts as habits, reinforcements, inhibitions, extinctions, and so on. This is not to mention those who see neural impulses alone, nor those who see infantile frustrations, Oedipus complexes, anal eroticism, and concepts of similar kind. When the rat runs the maze what has happened? Is the fact a simple S–R arc, or a structured field, or behavior directed toward the attainment of a state of quiescence, or the result of a reinforced habit pattern? It becomes evident that the fact involves a set of concepts so intimately that only the naïve can insist that all we do is "get the fact." To put the matter in another form it is possible to say that the facts are not

separate from the meaning of the facts. It is possible to go much further and say that there are no facts apart from meanings, and that meanings involve a set of categories (or concepts) which are in a definite sense a priori to the facts sought. *Every scientific observation involves a set of categories a priori.*

It must not be assumed that Kant was necessarily correct, and that there exists a *single* set of categories a priori to every possible observation. The categories a priori to a given observation are not a priori to every observation. It may be that there is a minimum set of such categories a priori to every possible observation. Our purpose in this article is not to attempt to discover whether or not such a set exists, nor whether sense data compel the rise of a given set of categories and no other. That it is not possible to use any set of categories for any sense data is evident in the history of science both in medicine and more recently in the controversies over the quantum-versus-wave theories of the nature of light. This situation with respect to the question of the nature of light is very illuminating, since it illustrates so well not merely the inapplicability of one set of categories to one set of sense data, but also the fact that even though observation involves a set of categories a priori to that observation, yet sense data may demand a revision of the categories a priori. In other words, the a priori character of the categories of interpretation does not guarantee that they are absolute and/or transcendental.

Facts are ambivalent. They refer to events which give rise to sense data and also to categories in terms of which the events are interpreted. In ordinary scientific procedures the event is basically a *ding-an-sich*. Science is not concerned with events *qua* simple events any more than it is with the sense data they originate. Science deals with facts, i.e., with interpreted events. Observation and interpretation are not two separate processes but are intimately related aspects of a single activity.

In conclusion, we state four propositions which this paper seeks to emphasize:

(1) Sense-data are not facts. (Hence naïve empiricism and radical positivism are untenable positions.)

(2) Facts are the result of the interpretation of sense data by means of a categorical system which is a priori. (Hence rationalism alone is insufficient to give us facts.)

As a sort of corollary to (2) we have

(3) Every scientific observation presupposes a set of categories a priori. (A science, therefore, is a consistent system of facts.)

(4) It is necessary to differentiate among events, sense data, and facts.

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MR. RIESER ON ARCHITECTURE

As one who has come into philosophy through architecture I greeted the title of Max Rieser's recent article, "The Language of Shapes and Sizes in Architecture or on Morphic Semantics."[1] The article itself, however, fell short of the demands of both an architect and philosopher concerning such subject matter. I should like to consider some special aspects of the article prior to making some general remarks.

Mr. Rieser's treatment of "style," as growing out of expressive desires that are distinct from the practical purpose or engineering aspect of a building, is very misleading. The essence of any style, as a matter of fact, is its structural language (where "structure" is used in an engineering sense). New structural elements are *sufficient* for establishing a new architectural style, though nonstructural elements are developed which adhere to the structure, nonstructural elements which, if distinctive to a particular type of construction, become an aspect of that style. The essence of the Gothic is not a decorative motif or special system of ordering of fenestration, but the use of new structural elements, the pointed arch, the groined and ribbed vault, and the flying buttress. The development of tracery and new moldings is a merely superficial aspect of the style. The style would be a distinct one had these decorative elements never been developed. On the basis of the "expressive" (as Mr. Rieser uses it) one could hardly distinguish between the architecture of Greece and Rome. These architectures are, nevertheless, quite distinct. The distinction does not lie in the development of a new order (for the Romans borrowed those of the Greeks, adding only one of their own) or a new motif, but in the use of rubble bound by adhesive cement as a building material, the development of the dome and barrel vault, of the arch which replaced the post and beam, and the subsequent creation of the arcade. No matter how the expressive desires of a culture may change, a new style cannot be created until new materials and new structural methods are

[1] *Philos. Rev.*, LV (March, 1946), 152–173.

developed. Modern architecture expresses much of our culture, it is true, but only because our culture is essentially "caught" in the new materials, concrete, steel, and glass, and in the technical development of new structural members and systems made of these materials.

Mr. Rieser writes, "Mounting height may be expressed through recession of the upper stories" (pp. 158–159). If this is so it is only because we have learned to accept it as such through association. Recessions in height were not originally used to express this mounting but because zoning laws demanded them in order to permit light to enter streets. Where there have not been such zoning restrictions tall buildings have been built without recessions and manage to mount very effectively. The Philadelphia Saving Fund Society building in Philadelphia is a case in point. Where such zoning laws were not in effect, as in medieval France, many buildings stepped out as they mounted so that additional space might be obtained above the street level. This is a common feature of Gothic noninstitutional architecture, where a simple cantilever was used. Where recesses are not demanded by law they are not practical and are avoided by good architects. If they express anything it is essentially the building laws and what they represent.

It should also be pointed out to Mr. Rieser that the illusion of height (as an aspect of the study of perspective) can be obtained not by convergence of mounting lines but by divergence. Of a pyramid and cube of the same height, the latter will appear the taller. A tall building whose walls diverged as they "mounted" (enough to compensate some for convergence in perspective) would soar even more than the rectilinear Philadelphia Saving Fund Society building mentioned above.

I am not quite sure what is meant by the contention that the stressing of the second of three contiguous windows by "enlargement or a frame or a decoration" is the creation of a "rational structural whole" (p. 158). The inference seems to be that the windows which lack such structural emphasis lack this rational wholeness. In the sense in which these terms are commonly used in architecture it is generally conceded that in many cases the most "rational" fenestration is of a continuous nondifferentiated nature. Such is displayed in the Longfellow Building in Washington, the C.B.S. building in Los Angeles, and the P.S.F.S. building in Philadelphia.

Mr. Rieser also uses the term "façade" differently than does the architect, since for him it evidently cannot be "practical-functional."

He writes of the façade as a superficial shell that may or may not be attached to a building; "insofar as utility goes buildings may exist without façades" (p. 157). This is equivalent to saying that insofar as utility goes a dime may exist without a "head." Every building has at least one façade, and there *are* such things as practical and functional façades. The three buildings cited above are examples. The façade may or may not be an integrated aspect of design, depending on how functional is the design. Mr. Rieser's choice of Notre Dame of Paris (p. 157) as an example of a building which does "exhibit such a balance" between interior and exterior is an unfortunate one. The façade of Notre Dame does not express the vaulting behind it, nor the gabled roof or buttress system. The entrance gives a false impression of the circulation within the Cathedral and does not indicate the relative importance of size of the avenues of circulation.

Mr. Rieser points out that the Doric Temple has a "reverential" (p. 164) quality. He demonstrates this by citing examples of the use of its form for a library, a church, and a museum. His illustrations are very selective since this form has been used with equal frequency within this country for banks. I am not sure that Mr. Rieser would be willing to call our concern with the dollar, devoted as it may be, "reverential."

To write "modern buildings look very much alike, whatever their purpose" (p. 167) shows the same penetration as the musically uninitiated who thinks that Beethoven and Brahms are indistinguishable. Mr. Rieser might be interested in knowing that the average architectural student, let alone practicing architect, cannot only tell with considerable accuracy the function of a modern building from an external examination, but, even more, he can identify the architects of a series of buildings serving the same function. It does not require a genius to identify among a selection of, say, $20,000 homes the work of Wright, Koch, Wuster, Neutra, Gropius, etc. It takes an architecturally insensitive person to say that the Tugendhat house, the Bauhaus, the house at Bear Run, the P.S.F.S. building, and the Modern Museum of Art look alike.

With respect to his general thesis Mr. Rieser writes: "The specific morphic law [style] is autonomous; it would be nonsense to approach a Gothic cathedral with a Renaissance standard, or vice versa. . . . Different morphic laws obtain in these cases. The particular law of shape exhibited by some style is grasped intuitively through inspection" (p. 161). Were this to be taken literally one would be forced to

accept at least a relativistic if not skeptical aesthetics. If styles may not be compared with respect to some standard external to them, then progress in art would be inconceivable. It may be that we have not progressed aesthetically, but if so, that is not sufficient reason to exclude the possibility of our doing so in the future. The necessary task which faces the aesthetician, one which he is reluctant to take up, lest his speculative reverie be broken, is the development of an experimental science of aesthetics that would make available scientifically objective standards for evaluating aesthetic creations. Our chances of producing a more effective art in the future depends on our ability to raise to consciousness such problems and our ability to frame at least provisional responses.

Such a dichotomy as Mr. Rieser makes between spiritual and practical function (p. 171) would, in the program outlined above, either have to be made more precise or eliminated. At the moment it has a metaphysical flavor. Other fundamental terms should also be clarified. As a philosopher I *might* be expected to be "intuitively" aware of the meaning of "function" and "useful" and the distinction between them, but as an architect I would hardly be expected to display the powers uniquely ascribed to the philosopher. I cannot help wondering whom Mr. Rieser intended to inform about architecture — the architect or the philosopher. He has failed to do either by concerning himself with minutiae when a huge problem lurks in his every line, a problem even the formulation of which would be a considerable service.

The basic problem within architecture is just the defining of the term "functional." This term has been the pivot of all great architectural styles. Architects (creative rather than recreative ones) have a "religious" faith that in functional design lies the opportunity not only to produce another great architecture but to serve society with an efficiency it has not hitherto known. But the architectural mind is not inclined to methodological analysis; as a consequence, the concept of "function" remains vague, and design proceeds partly directed by reason and partly by intuition. The philosopher can serve the architect by setting down the conditions for functional design. He can take the typical architectural statement "a functional design is one that serves the purpose of the building in the most direct way possible," and begin to make sense out of it. He can define "most direct way" in terms of efficiency and then start to lay the foundation for sciences of efficiency. He can tell what or whose purpose architecture is to satisfy and tell how that purpose is to be determined. That contemporary utilitarian

standards are inadequate (as well as exclusively aesthetic standards) could best be shown through a much needed analysis of the concept "function" as an aspect of not individual or even social purposes, but of *historic* purposes as revealed in the history of mankind. These are not mean tasks that are to be done by glancing at histories of art and architecture. It will require the *active* co-operation of architect, engineer, psychologist, social scientist, historian, and philosophical methodologist.

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REVIEWS OF BOOKS

AN INTRODUCTION TO PEIRCE'S PHILOSOPHY. Interpreted as a System. By JAMES FEIBLEMAN. With a Foreword by BERTRAND RUSSELL. New York and London, Harper & Brothers, 1946. Pp. xx, 503.

The advanced exploration of the thought of C. S. Peirce, a project made possible by the publication of the first six volumes of the *Collected Papers* (1931–1935), has opened to view a broad field of substantial philosophical achievements, which seem now to place Peirce in the first rank of modern philosophers. His own conception of pragmatism (or "pragmaticism," as he later came to call it, to distinguish it from other doctrines) is seen to have resources additional to those tapped by the latter-day pragmatists. In logic, which Peirce considered his major work and the foundation of his other theories, he contributed a carefully developed and original semiotics (which is essential to the understanding of pragmaticism), some important studies on scientific methodology (centered in the conceptions of probability, induction, and abduction, or the way of deriving new hypotheses), and an enormous amount of technical material, especially on the logic of relatives. As for metaphysics, value theory, psychology, and even religion, although Peirce's speculations in these fields were relatively less developed, they have the stamp of originality and are, above all, "open" theories, in the sense of offering themselves for whatever employment and revision competent investigation might find appropriate. For Peirce held to the maxim: "Do not block the way of inquiry."

Such an offering of philosophical goods deserves the most thoughtful examination and appraisal, and, fortunately, Peirce's work is now receiving such attention from many sides. In the book under review, Mr. Feibleman, one of the most devoted and enthusiastic students of Peirce, has undertaken the important enterprise of getting the full range of Peirce's thought before a wide philosophical audience. Not only are the *Collected Papers* as a whole an immense reading task, but, being made up, as they are, partly of fragmental manuscripts in various stages of revision, representing different moments in the evolution of Peirce's thought, they naturally raise many questions as

to what Peirce's best considered views on certain matters were. Even the excellent job of arrangement of the materials by the editors, Mr. Hartshorne and Mr. Weiss, is insufficient, alone, to demonstrate the comprehensively systematic character which Peirce himself believed his philosophical ideas possessed. With this in mind, Mr. Feibleman has attempted to deliver his account of Peirce's philosophy in such a way as to reveal "the implicit system which stood behind everything he wrote, but which somehow never got itself organized on paper" (p. xviii).[1] This work of systematic exposition has been performed on a grand scale, the entire project occupying 362 of the 487 closely packed pages of the text of this book. (The remainder of the volume is composed of some supplementary essays, mainly of a historical nature, which will be discussed later in this review.)

The expository part of the book is divided into chapters headed as follows: Logic; Metaphysics: Ontology; Metaphysics: Epistemology; Psychology; Methodology; Science; Ethics; Aesthetics; Cosmology; and Theology. Under these headings the author provides more or less detailed statements of Peirce's views on practically all the philosophical questions in which he had any interest. (The single important omission is Peirce's more technical work in formal logic and the logic of mathematics, which is rightly considered to be beyond the scope of an introductory presentation.) In breadth of coverage, this is the most comprehensive account of Peirce's philosophy yet published. It should be of considerable assistance to persons whose acquaintance with Peirce has so far been restricted to the theories of pragmatism, scientific methodology, and, perhaps, the more spectacular elements of his evolutionary metaphysics. The panoramic view of Peirce's various investigations, in all their range and (sometimes) thoroughness, provides a setting within which his better known doctrines can be more adequately understood.

The exposition is notable, moreover, for the extent to which Peirce is permitted to speak in his own words. Mr. Feibleman's policy has evidently been to say nothing himself which he could get Peirce to say for him. The value of this procedure, in general, will be apparent to anyone who has dipped into Peirce and observed the close-knit and subtle quality of many of his arguments.

The most important feature of this account is, however, the attempt to represent Peirce's ideas as constituting a system. That Peirce did have a propensity for systematizing is beyond question. It was, in fact, his avowed intention to return philosophy to a position of broad intel-

[1] References to Mr. Feibleman's book are by page number. References to *Collected Papers of Charles Sanders Peirce* (edited by Charles Hartshorne and Paul Weiss; Harvard University Press, 1931–1935) are by volume and paragraph number, e.g., (I. 22).

lectual authority comparable in some respects with that to which Aristotle had once brought it. He proposed "to outline a theory so comprehensive that, for a long time to come, the entire work of human reason . . . shall appear as the filling up of its details" (I.i). Peirce set up a classification of the sciences (including, of course, philosophy) according to their relative functions in the systematic pursuit of knowledge as envisioned by philosophy. The order in which Mr. Feibleman has set his chapters on the various fields of philosophy is intended to represent a strictly logical order obtaining among these fields. Each chapter is said to "rest upon" all the preceding chapters as well as upon "matters of fact" (p. 151). The author attempts to exhibit this relationship of dependence through the use of a succinct résumé at the beginning of each chapter, explaining the bearing in general of the preceding material on the present chapter, as well as by numerous footnotes throughout the chapter, referring to relevant particulars in previous chapters.

In spite of this frequent doubling back, however, and in spite of a large amount of repetition of ideas and arguments in various chapters, the order of precedence among these branches of philosophy turns out to be less clear and, one suspects, less important than Mr. Feibleman makes it out to be. For example, metaphysics follows logic in this presentation because Peirce wrote that "metaphysics consists in the results of the absolute acceptance of logical principles . . . as truths of being" (I.487). But it has to be remembered that Peirce considered logic to be an "observational" science (whose procedure is exemplified by "mental experimentation" with diagrams); and as such it depends on phenomenology, the study of "the kinds of elements universally present in the phenomenon" (I.186). Phenomenology, however, follows rather than precedes logic in Mr. Feibleman's system. (It is included, not altogether justifiably, in the chapter on metaphysics.) There are a number of other cases in which topics have to be introduced at inappropriate points because of the requirements of this arrangement according to branches of philosophy. On the whole, the attempt to establish an order of logical priority among these branches is unsatisfying.

But there is another, more significant order which gradually becomes apparent in the course of this exposition — an order among Peirce's main creative ideas. The reader discovers that on Mr. Feibleman's interpretation, all the crucial conceptions of Peirce's philosophy involve the central and fundamental doctrine of the reality of "generals." By "general," Peirce meant any element of the category he called Thirdness (which embodies law, continuity, meaning, etc.) as distinguished from the category of Firstness (quality, or "suchness *sui generis*") and the category of Secondness (bare fact, apart from

reason). Peirce held, that is, to realism in the scholastic sense. And he believed that his philosophy as a whole stood or fell on the issue of realism *vs.* nominalism. Mr. Feibleman, who has the valuable capacity for taking seriously Peirce's own statements of what he was about, is persistent in trying to show how this underlying tenet of realism molds the key ideas in Peirce's philosophy wherever these appear. For example, a sign or representamen, as such, has a kind of being independent of its being thought; and insofar as a sign is apprehended by a thinker it functions as a real conditioner of his experience. The mechanism of this is the assumption by the thinker of the "habit" demanded by the meaning of the sign. This habit cannot be simply a promise of a particular uniformity among future acts, for that could never exhaust the full meaning of the sign. Therefore, habit must consist in a conditioning of behavior which is, in some sense, general. This difficult idea, which is at the heart of pragmaticism, is explicitly realistic as it is developed by Peirce (a fact which goes far toward explaining Peirce's dismay at the manner in which his pragmatic maxim was modified by William James and John Dewey). Peirce goes on to argue that the generality in a habit ultimately consists in the "purpose" which the habit expresses. Thus purpose is seen as the embodiment of the general or ideal, rather than as simply a fact of human volition. The extension of the notion of habit to the uniformities in nature in general (most strikingly exhibited in the conception of matter as "effete mind") is accompanied by a like extension of the notion of purpose (culminating in the cosmology of "evolutionary love").

By means of analyses along such lines as these, somewhat scattered throughout the exposition, Mr. Feibleman provides the outlines of a relatively unified interpretation of Peirce, centered on his realism. It is unfortunate that Mr. Feibleman's pursuit of this theme is so often interrupted and, sometimes, obscured by his efforts to justify his systematization in terms of the branches of philosophy. Even as it stands, however, it provides a perspective on Peirce which merits serious consideration.

There is, unfortunately, a considerable defect in the form of this expository section, namely, the very loose-knit character of many passages. This is noticeable especially when, as sometimes happens, Mr. Feibleman attempts to state an argument by arranging together in a paragraph, with a minimum of intervening comment, separate sentences from various writings of Peirce on the topic at hand. These are intended to represent steps in the argument, and the paragraph is accordingly brought to an end with a conclusion supposed to follow from them. But the exact line of argument is sometimes quite unclear, particularly when some of the sentences cannot be adequately under-

stood outside their original contexts. In cases of this sort, the reader has to leap precariously the gap between one quotation and the next — a fatiguing and somewhat hazardous operation. In the section on consciousness and introspection, for example (one of the most bewildering pieces of exposition in the book), the concluding paragraph (p. 227) begins with the quotation of two passages from an argument by Peirce intended to show that a knowledge of the mind or self cannot be attained through introspection as directed upon the emotions. This argument is broken off in mid-course, however, and is succeeded by the quotation of what happens to be (though the reader has no way of knowing it) the concluding statement of a different argument by Peirce intended to show that we have no *intuitive* self-consciousness.

The following abridged quotation from Peirce appears on p. 153: " ' The triad brings a third sort of element, consisting of a colligation of two propositions. . . . This reason first emerges in the *syllogism.*' " The reader who finds this difficult to follow because he does not understand what "this reason" is can enlighten himself only by going to the *Collected Papers* for the missing section of the passage. (The reference, omitted in the exposition, is I.515.)

In stating how logic arrives at its principles (p. 86), Mr. Feibleman launches into the middle of an important statement by Peirce: " 'If a given habit, considered as determining an inference, is of such a sort as to tend toward the final result, it is correct; otherwise not. Thus, inferences become divisible into the valid and the invalid; and thus logic takes its reason of existence' (III.161)." What "the final result" is will surely be a puzzle to the average reader at this early stage of the discussion. The answer is to be found, of course, in the preceding sentences of the paragraph from which the quotation is taken. Peirce says that the logician's faith is that "the mode of the peripheral excitations" involved in the process of thinking is subject to a law, namely "that they are all adapted to an end, that of carrying belief, in the long run, toward certain predestinate conclusions which are the same for all men." This is "the final result" toward which a good belief-habit tends.

It is necessary to mention, further, the presence of a number of surprising inaccuracies in details, most of which seem to be the result of quoting sentences or phrases out of their contexts. Some of these are unimportant. They point up, however, one of the disadvantages of an excessive reliance on quotations to tell a story. For example, Mr. Feibleman has Peirce arguing that "reasoning is not good or bad" (p. 82), referring us to II.151. On the face of it, this seems clearly contrary to Peirce's usual opinion (see, for example, I.606, II.182), and when we examine in its context the passage referred to, we find

Peirce unmistakably, though obliquely, saying that reasoning *is* either good or bad. Again, in the discussion of Peirce's notion of the "term" (as a sign) (p. 97) it is remarked, correctly, that Peirce described a term as a proposition with its indices left blank or indefinite. A statement by Peirce is brought in for illustration: "Take the idea of 'buying by ——— of ——— from ——— in exchange for ———.' This has four places where hecceities, denoted by indexical words, may be attached" (III.461). Then Mr. Feibleman goes on to say: "Each of the four is a term." But it is not the "blanks" in the proposition, but the proposition with "blanks" in it, which Peirce compared with a term.

Mr. Feibleman writes (p. 102): "The truth of a proposition consists in the relation of the 'outward expression' of a proposition to that to which it refers 'just as any possibility is related to its actualization' (V.424 n. 1)." But what Peirce says, in the passage referred to, is this: "The writer . . . invariably uses the word *proposition* not as the Germans define their equivalent, *Satz*, as the language-expression of a judgment *(Urtheil)*, but as that which is related to any assertion, whether mental and self-addressed or outwardly expressed, just as any possibility is related to its actualization."

At least four times in the section on speculative rhetoric, statements are made about "the arousal of representamen in interpretants" (pp. 129, 132), whereas for Peirce the representamen, or sign, is what arouses an interpretant in the *interpreter*.

Peirce is quoted (p. 136) as saying that "if inductive and hypothetic premisses lead to true oftener than to false conclusions, it is only because the universe happens to have a certain constitution" (II.749). But this is a point of view which Peirce attributed, with some disapproval, to such people as "Mill and his followers" and the Abbé Gratry. Peirce himself attempts to show, in that very paragraph, that "the modes of inference in question are necessarily valid, whatever the constitution of the universe, so long as it admits of the premisses being true," and so long as one allows the negative assumption that there exists no "mysterious and malign connection between the mind and the universe" to interfere with "the action of chance."

Perhaps the most curious slip in the book is to be found in the chapter on epistemology, where the author, a determinedly realistic interpreter of Peirce, writes: "Epistemologically, yet with full consistency, truth may be defined as a process" (p. 212).

The presence of inaccuracies of this sort, together with the loose-knit style of the writing, detract somewhat from the usefulness of this exposition. It is, however, fairly reliable in its main outlines, and, for a comprehensive view of Peirce's work, it is at present the next best thing to reading the *Collected Papers* themselves.

In addition to the expository part of this volume, Mr. Feibleman provides four quite useful background studies. The reader is introduced to Peirce in Chapter I, "The Historical Development of Peirce the Individual" — a compact and very interesting biographical sketch — and in Chapter II, "The Logical Development of Peirce's Thought," in which the author traces effectively the formative intellectual influences on Peirce: "the stimulus of Kant," the realism of Scotus, the Darwinian idea of evolution, the Cartesianism against which Peirce rebelled, and Peirce's own experiences as a practicing scientist.

The book closes with two brief chapters in which Mr. Feibleman attempts to set Peirce's realism in its rightful place in the history of philosophy. In "Realism from Plato to Peirce," the three primary strains of metaphysical thought, realism, extreme realism, and nominalism, are followed from the Greeks to the present. Reid is held to have been the key figure in the instigation of modern, "secular" realism. There is a sketch of the continuance of this tradition in the British realists (especially John Cook Wilson, G. E. Moore, and Bertrand Russell) and, in America, in Mr. Whitehead's philosophy, the similarity of which to the philosophy of Peirce is described as "simply astounding" and is documented in some detail. This chapter contains what Mr. Feibleman admits is a rather incomplete statement of Hume's position (based, evidently, on Book I of the *Treatise,* alone) and a questionable description of Locke as "restricting certain knowledge to sensations" (p. 451). These, however, are not particularly germane to the main argument of the chapter.

The final chapter, "The Early History of Peirce's Influence," is devoted largely to a lively attack on what Mr. Feibleman regards as misunderstandings or one-sided understandings of Peirce by James, Royce, certain "positivists" such as Justus Buchler, and, especially, John Dewey. Mr. Feibleman's criticisms of Mr. Dewey's views, particularly as these are set forth in *Logic,* is a strenuous effort to maintain Peirce's realism, in its most outright form, against "a basic nominalistic metaphysics" which is seen as conflicting in Mr. Dewey's thought with his predilection to be "a realist of the Peircian persuasion" (p. 482). The argument is not as persuasive as it might be made in a more extensive statement, but it sets forth clearly the principal issues. Its value at this stage in the investigation of Peirce — and here we return to a point raised earlier in this review — lies in the contribution it makes to the attempt to understand Peirce on his own grounds, as, among other things, a realist of an original sort and a rationalist who knew what he was about. This attempt is well worth making; and Mr. Feibleman's contribution to it, both in the argu-

ments just mentioned and in some parts of his detailed exposition of Peirce's system, is a considerable one.

Among the typographical errors which occur, there are a few which may be misleading (in some cases they are misquotations of Peirce). These are therefore listed below.

Page	*Line*	
83	2	"that it is"; should be "this"?
100	28	"conditions"; should be "conditionals."
120	16	"proposition"; should be "proportion."
127	33	"illusion"; should be "allusion."
164	22	"casual"; should be "causal."
179	29	"(127 n. 1)"; should be "(1.27 n. 1)."
243	12	"an"; should be "no."
314	3	"mark"; should be "man."
448	5	"subjunctive"; should be "subjective"?
476	30	"of arguments"; add "to truth"?

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A KIERKEGAARD ANTHOLOGY. Edited by ROBERT BRETALL. Princeton, Princeton University Press, 1946. Pp. xxv, 487.

Judiciously selected and handsomely printed, the readings in this volume make an excellent introduction to the thought of Kierkegaard. Mr. Bretall has included generous excerpts from all the major works, adequately representative of the range of Kierkegaard's literary skill and the virtuosity of his handling of the single major problem to which his life and thought were devoted — the problem of the paradoxical relation between his own temporal and highly subjective existence and the Eternal to which he looked for salvation. Both the "Diary of a Seducer" and "Edifying Discourses" are here. "Training in Christianity" has its place alongside the "Attack Upon 'Christendom.' " And the "Concluding Unscientific Postscript" gives an acutely reasoned basis for an antirational faith as the final source of "truth" about the meaning of human existence. The reader who has heard much at secondhand about the importance of this "existential" philosophy and wants to discover for himself what it actually amounts to will find here, in a very readable form, most of the essential materials for a decision.

If he is a discerning reader, however, his estimate of the worth of this doctrine as a philosophy may well diverge from that of the enthusiastic editor. In his Introduction, Mr. Bretall writes of Kierkegaard as a man "whom the English-speaking world is now coming to recog-

nize as one of the most important literary figures of the nineteenth century and one of the greatest, most individual thinkers of all time" (p. xvii). Individual he certainly was, and there can be no question of his importance as a literary figure. But pre-eminent greatness as a thinker is another matter. Within the narrow range of his insight and preoccupations, Kierkegaard was an original and penetrating thinker, and a singularly honest one. What he lacked was wisdom. He was not even a lover of wisdom. On the contrary, the passionate one-sidedness and egocentricity of his thought are of its essence. His philosophical concern was explicitly limited to the "existing" individual in his subjectivity, and this meant for him specifically his own existence. "The only reality that exists for an existing individual is his own ethical reality" (*Concluding Unscientific Postscript*, p. 280; all further page references are to this work). Such an individual "thinks everything in relation to himself, being infinitely interested in existing" (p. 281). "There is only one interest, the interest in existence; disinterestedness is therefore an expression of indifference to reality" (p. 282). Also, "there is only one kind of ethical contemplation, namely, self-contemplation" (p. 284). And finally, to clinch the matter, "the sole ethical interest is the interest in one's own reality" (p. 288). An "existentialism" thus limited in its conception of "reality" is simply, in its philosophical pretensions, an attempt to raise egocentricity to the level of a metaphysical principle.

It is true that Kierkegaard goes on to say that "the believer differs from the ethicist in being infinitely interested in the reality of another (in the fact, for example, that God has existed in time)" *(ibid.)*. But it soon becomes apparent that it is not this fact as an objective truth, as something that there is good reason to believe actually happened, that the believer is interested in, but rather his own relation to it. For "truth is subjectivity," and "when the question of truth is raised subjectively, reflection is directed subjectively to the nature of the individual's relationship; if only the mode of this relationship is in the truth, the individual is in the truth even if he should happen to be thus related to what is not true" (p. 178). And again: "Only in subjectivity is there decisiveness, to seek objectivity is to be in error. It is the passion of the infinite that is the decisive factor and not its content, for its content is precisely itself. In this manner subjectivity and the subjective 'how' constitute the truth" (p. 181). Thus even the passion for the infinite has only itself for its content. The "existential" thinker's concern is not really with God, for "God does not exist, He is eternal" (p. 296). It is rather with his own concern about being in a subjectively right relation to God, with the anxiety generated by the paradoxical nature of this one-sided relationship, with the sense of guilt that arises from inevitable failure to come to terms with it, and

so on endlessly through ever-deepening labyrinths of frustrated inwardness and "passion." It is easy to see why this doctrine has been a source of inspiration for the radical individualism of contemporary existentialists. It is more difficult to find in it anything approaching the religious insight that has often been claimed for it.

The gist of the matter seems to be that while Kierkegaard was a genius in the delineation of "subjectivity" as an attitude appropriate to human existence in its temporal and spiritual limitations, he was never able nor willing to understand the meaning of objectivity, not as "indifference to reality" but as that exercise of spiritual self-mastery by which, in knowledge and loyalty and love, an individual can get outside of his preoccupation with his own self-tortured inwardness and become a citizen of a larger world. There are, in consequence, no generosity of understanding in his insight and no real hope in his introverted religiosity. The tragedy of his life was not that the salvation he sought was unattainable, but that he would never have been at peace in it if he had attained it. The knowledge and love of God are no proper goals for an individual whose concern is endlessly and infinitely with himself.

The contrast of this religious attitude with that of Spinoza is striking. If Spinoza is properly described as a "God-intoxicated man," Kirkegaard is, in the same idiom, a self-intoxicated one. It is a significant commentary on the tortured sensibility of our time that it has found in the latter, rather than in the former, the appropriate expression of its own religious experience.

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MAN AS SINNER IN CONTEMPORARY AMERICAN REALISTIC THEOLOGY. By MARY FRANCES THELEN. New York, King's Crown Press, 1946. Pp. xii, 224.

Under the leadership of Reinhold Niebuhr, the neo-orthodox movement in Protestant theology became, within the decade 1933–1943, the most influential and challenging development in contemporary American religious thought. Combining Kierkegaard, Marx, and Freud with Augustine, these self-styled "realistic" theologians resurrected the doctrine of original sin, gave it new content and significance. Judging finite and historical man against a transcendent standard of infinite and eternal Perfection (God as Judge and Redeemer), they found man inevitably and inescapably sinful. Redemption is not salvation; within history man cannot be saved from his original sinfulness. Though the influence of this Christian realism continues to be felt ever more widely, the nature of its challenge, direct and inten-

tional, to traditional Protestant liberalism can now be examined and assessed. To accomplish such an evaluation, Miss Thelen has written *Man as Sinner.*

In one respect, Miss Thelen has succeeded. She has examined the positions of Walter N. Horton, Robert L. Calhoun, John C. Bennett, and Reinhold and H. Richard Niebuhr. She has made it admirably clear how each of these five theories differs from the others, and how all share certain fundamental emphases and assumptions which make them members of the realistic movement. Adequately too, she has contrasted their common position with that of Christian liberalism. Those who require instruction on these several points will find Miss Thelen adequate and accurate.

But whoever expects more than adequate and accurate exposition will be disappointed. Miss Thelen has neglected her opportunity to consider realistic theology within the total context of contemporary thought and to offer illuminating and fundamental criticism. Herself a convert to this realistic faith, she has published her doctoral dissertation on the faith for the benefit of the faithful. Though in her final nine pages she offers two objections to neo-orthodoxy — charging that Christian realists have been uninformed about a psychoanalysis on which to some extent they lean, and that the Incarnation with its emphasis upon God as merciful Shepherd should be stressed equally with the Atonement — she never once faces the basic critical issues even when her own objections involve them.

The fundamental critical issue for this doctrine concerns its theory of human nature as inevitably and inescapably sinful: what evidence and what method can establish the truth of such a radically pessimistic doctrine? In two pages of analysis (pp. 180–181), Miss Thelen appreciates the absurdity of making man a sinner by definition and the genuine difficulty of appealing to any induction. She doubts that neo-orthdoxy, here represented by Reinhold Niebuhr, who has most thoroughly examined the question, ever sought to establish its doctrine of human nature by an empirical examination of individual men; and she regards as a misinterpretation the contention that Christian realists deduce the inevitable and inescapable sinfulness of man by appeal to a definition of transcendent and infinite Perfection. Rather, she suggests, the truth of this theory is known only by intuition, by an intuitive awareness of the necessary connection between freedom and anxiety. Man is free to choose his standard of values, but his freedom to choose he regards as a burden which issues in the anxiety causing sin. With the remark that others may share this insight depending upon proper "preparation" and their conception of freedom, she dismisses the whole problem.

But neither Miss Thelen nor the men whom she examines can

dismiss this problem by appeals to an intuition concerning a necessary connection between freedom of decision within the limits of human nature and a feeling of anxiety for the burden man discovers in making any particular choice. For this intuition is but a method of begging the question in an area supposedly inaccessible to rational criticism. Apart from some value judgment concerning human nature as imposing limits on freedom of choice, the connection between freedom and anxiety, if there is any, is neutral. On naturalistic assumptions, the anxiety could be explained as derivative of man's consciousness of insecurity in respect to his physical and social environment. On the assumption that man is essentially good, the anxiety could be interpreted as a diffused feeling of responsibility for and elation in his free acts. Only on the presupposition that man is essentially sinful can the connection between freedom and anxiety be regarded as the condition and the sign of sin. But it is this presupposition of Miss Thelen's intuition which she supposes the intuition itself to establish. In fact, Miss Thelen gives herself quite away by stating: "The intuition that freedom invariably implies anxiety emerges out of Niebuhr's analysis of man's situation as characterized both by finiteness and by freedom . . ." (p. 181). Yet if the intuition depends upon regarding man as finite relative to a standard of infinite Perfection, then man's sinfulness is being deduced by reference to this standard. On the other hand, if man is taken as finite but not in relation to an infinite, then it is not clear what such finitude could be nor how it could involve sin.

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HUMAN DESTINY. By LECOMTE DU NOÜY. New York, Longmans, Green & Company, 1947. Pp. xxii, 289.

This has the appearance of being a new book, written in English. It is, in fact, a condensation of portions of *Le Temps et la vie* (Paris, 1939) and *L'Avenir de l'esprit* (Paris, 1941). The latter book, written in Paris during the German occupation, ran to twenty-two editions in eight months. An American edition was published by Brentano's in 1943. *Human Destiny* has been a steady best seller in this country.

If the thousands who have read this book have found much comfort in it, they must be easily reassured. Lecomte du Noüy is not the first distinguished scientist to have tried to establish religion on the basis of scientific fact; and, as usual in such cases, the deity that emerges has an exceedingly tenuous and abstract nature. A vague force inaccessible to prayer or ritual, working for the eventual improvement

of the human condition in a future still tens of thousands of years distant, can hardly inspire much personal devotion.

It may be suspected that the popular appeal of du Noüy's writings is due less to his meager positive conclusions than to the venom with which he attacks "the philosophical attitude known as materialism, mechanism, rationalism, or sometimes atheism" (p. 40) — the collocation is characteristic — and the reckless abandon with which he denigrates scientific method.

He is never tired of repeating that science is not to be trusted: "the whole intellectual pattern which we call our science is basically wrong" (p. 189). The claim of science to disclose reality is a fraud: "the phenomena" of which it speaks "only exist as such, in our brains" (p. 6). We must not confuse "these human subjective laws which our intelligence has superposed on facts, with the true, eternal, laws" (p. 14) which may always escape us. "There is no scientific truth in the absolute sense" (p. 15).

So much for the *results* of science; its *methods* are no better — "All our scientific laws at present rest on chance" (p. 26). Yet the probability of the creation of even a relatively simple molecule (not to speak of a biological organism) *by chance* is so small that there simply has not been space and time enough for it to happen! "The volume of substance necessary for such a probability to take place is beyond all imagination" (p. 34). We are forced to fall back "on a miracle or a hyperscientific intervention" (p. 36). We must postulate a purposive factor, an "anti-chance" who "systematically violates the law of large numbers" (p. 38).

This type of argument is unhappily familiar from the works of other scientists as eminent as du Noüy. A fantastic caricature of scientific method (the exclusive use of "pure chance" as an explanatory factor) having been prepared for sacrificial immolation, every failure of Aunt Sally to explain the "real, eternal, laws" of the universe is joyfully received as "evidence" for the existence of a transcendental and supernatural agency. In this fashion, modern evolutionary theory is transformed from a triumph of scientific explanation into an edifying demonstration of the weakness of the human intellect. Every unsolved problem becomes an "unbridgeable gap." It is impossible "to imagine how evolution began" (p. 57); the presence of a nucleus in green algae is "a kind of miracle" (p. 60), and so is the beginning of sexual reproduction (Ib). It "might be wise not to apply the calculus of probabilities" (p. 65) to the differential rate of evolution of animals. And so on, indefinitely.[1]

[1] A good recent discussion of some of these difficulties is G. G. Simpson's "The problem of plan and purpose in nature" (*Scientific Monthly*, LXIV [1947], 481–495). J. S. Huxley's *Evolution — A Modern Synthesis* contains a more technical discussion.

Out of all these mysteries and miracles and "unsurmountable obstacles" emerges the solution of a "telefinality," an active intelligence "directing evolution as a whole" (p. 82). "How can we explain the simultaneous evolution of the elements necessary for vision *as long as vision did not exist?*" (p. 97). Very simply — "by postulating the intervention of an Idea, a Will, a supreme Intelligence" (p. 97). How did man come to have liberty of choice and a conscience? Telefinality, working against the law of increasing entrophy, did the trick.

Telefinality, introduced first as a vague and mysterious force counteracting the progressive disorganization of the material world, a mere "anti-chance" making for spiritual progress, gradually comes to be more specifically delineated. An unnamed correspondent who objected to the identification of "anti-chance" and "God" is guilty of "childish convictions" and "the intolerance of the Middle Ages" (p. 190).

Admittedly, this deity is inconceivable and incomprehensible: "We can no more conceive Him than we can conceive an electron" (p. 188). Yet, after all, we can discover His wishes, and so learn to cooperate with Him. For "we have been rationally led to the same concepts as those of Christian morality" (p. 135). But a "Christian morality" which has little place for love, the brotherhood of man, or the infinite value of the individual soul. The God who is not altogether on the side of the Law of Great Numbers remains more interested in the race than in the individual. Evolution depends upon "the few rare individuals" (p. 161) who are "an élite representing the spearheads of evolution" (p. 214); humanity interests us only as it "strives to emulate" these leaders (p. 161). Our personal duty is to play our part in bringing about the next stage of evolutionary advance, by fighting against the seductions of intelligence and the animal passions. For "intelligence, symbolized by Lucifer, the Prince of Intellectuals . . . will in fact almost always be opposed to moral and spiritual development, and will render the pursuit of true happiness difficult" (p. 136).

The authoritarian implications of this "Christian mysticism" (p. 268) should be plain enough. Du Noüy, however, in a discussion of educational principles obligingly underlines the immediate practical consequences of his doctrines. Education, not to be confused with *instruction,* which is unimportant, "consists in preparing the moral character of a child" (p. 208). The moral code is final and "cannot be perfected" (p. 140); the rules of morality "must be invariable, and their progress can consist only in their diffusion" (p. 140). The education of the child, therefore, which must begin in the cradle (p. 209), consists largely in the inculcation of *automatic* obedience to his elders: "The idea that it is *possible* to disobey the parents must be eradicated"

(p. 211). When the authority of the parents has imposed itself "like a force of nature" (p. 211), we shall get "well-behaved, disciplined children" (p. 212) fit to live "in a society which is largely Christian" (p. 210). Later on, "namely, when he is about fifteen years old" (p. 210) the child may begin to use reason and judgment. But let it never be forgotten that "the great majority of men have not gone beyond the stage of childhood from a moral point of view. *They must, therefore be considered as children*" (p. 214, italics added).

So this is where a contempt for "the philosophical attitude known as materialism, mechanism, rationalism, or sometimes atheism" gets us — in a situation in which the common man is to be sacrificed for an unborn élite, in the name of a dogmatic and inflexible moral code dogmatically inculcated.

Such a blend of poor logic, distorted science, authoritarian pedagogy, and inhumane theology has little intrinsic importance. Its warm reception in two countries officially devoted to democratic and humane principles is a disturbing symptom of the growing encroachments of irrationalism.

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ESSAYS IN SCIENCE AND PHILOSOPHY. By ALFRED NORTH WHITEHEAD. New York, The Philosophical Library, 1947. Pp. 348.

Misleadingly heralded as a "new book" by Professor Whitehead, this is in fact a collection of previously printed papers, ranging in date of initial publication from 1911 to 1941, whose novelty consists chiefly in the occurrence, in this reprinting, of typographical errors happily absent from the original. The reader who here encounters for the first time the essay on "Mathematics and the Good" will be relieved, I am sure, to know that the "deflections" of the author referred to on page 102 were "reflections" in the volume from which this imperfect copy is derived.

The essays are collected under four heads: Personal, Philosophy, Education, and Science. In the first group are three very pleasing autobiographical pieces, a tribute to the historical importance of the "narrow seas" with accompanying memories of East Kent, and an "Appeal to Sanity" which is in substance a defense of the Chamberlain policy at Munich. This last is surprisingly listed under *Acknowledgments* as first published in March, 1937.

The essays on Philosophy include two important papers reprinted

from the Whitehead volume in the Library of Living Philosophers, the remarks made by Professor Whitehead at the Symposium in celebration of his seventieth birthday, a brief tribute to John Dewey, Whitehead's contribution to the symposium on his own philosophy at the 1936 meeting of the American Philosophical Association (somewhat difficult to follow without reference to the papers to which he was replying), and his presidential Address to the Aristotelian Society in 1922, "Uniformity and Contingency." This paper, by the way, is not listed in the Table of Contents.

Of the essays on education only one is of first-rate importance, but that one, "Harvard: the Future," contains some of the wisest things that its author has ever said. The papers on science are chiefly from the years before Whitehead had developed his own distinctive philosophical position. Three are reprints from the 1910–1911 edition of the *Encyclopedia Britannica,* one of them signed "B. A. W. R., A. N. W." The chapter on "The First Physical Synthesis," reprinted from F. S. Marvin's *Science and Civilization* (1923), foreshadows the more extended account of the development of modern science in *Science and the Modern World.*

It is good to read again these occasional writings of a great philosopher, even in this sometimes inaccurate version. The breadth, penetration, and originality of their author's mind make even the slightest among them valuable and memorable. But I was impressed also, in this rereading, with a curious disproportion and overemphasis in Whitehead's account of historical events and occasions. On the scale of the actual entity or the Universe his judgment is impressive, but in dealing with the middle-sized facts of human experience it is less reliable. For example: "Our modern civilization is due to the fact that in the year when Galileo died, Newton was born" (p. 228). And, in a somewhat different field, "Today Harvard is the greatest of existing cultural institutions" (p. 224). It is true that we have previously been warned that "the word Harvard is to be taken partly in its precise designation of a particular institution and partly as a symbolic reference to the University system throughout the Eastern states of this country" (p. 208). But even with due regard for the symbolic reference involved, Harvard looms somewhat more than life-sized in this speculative vista and is illuminated, for a moment, with the light that never was on land or sea.

This same essay on Harvard contains another sentence of equivocal import: "Revelation is the primary characterization of the process of knowing" (p. 216). Taken by itself this could be interpreted as a philosophical excuse for almost any sort of "revelation" that claimed the status of knowledge. Fortunately in this instance the needed correction is explicitly provided. "Revelation is the enlargement of

clarity" *(ibid.)*. It is as a seeker for the enlarged clarity of comprehensive understanding, not as an apologist for the obscurity of special revelations lurking in the "dim recesses of experience," that Whitehead merits the high place in contemporary philosophy now generally accorded him.

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PHILOSOPHY AND THE SOCIAL ORDER. By GEORGE R. GEIGER. Boston, Houghton Mifflin Co., 1947. Pp. 407.

Professor Geiger has written a critical introduction to philosophy. He has tried to describe the problems of metaphysics, epistemology, axiology, etc., in their social context, believing that this is the way to understand philosophy. All of the branches of philosophy are said to be concerned with human values and, consequently, with social problems, whether they appear to have this interest or not. Like all other problems, philosophical questions are properly approached by reflective thinking, that is to say, by scientific method as described by Professor Dewey.

Having established his point of view in Part One, Professor Geiger proceeds in Part Two to treat value questions as nearly as possible in the manner of factual questions. He decries all efforts to separate philosophical and scientific problems, because "the values man professes are of little importance unless they can be implemented, and . . . his technologies, if undirected, can be nothing but lunatic and fatal" (p. 293). In this vein, the author discusses a number of the current difficulties of political organization, economic planning, and education.

Philosophy and the Social Order is an authentic exposition of the instrumentalism of John Dewey, to whom the book is dedicated. The horrors of the past decade, Buchenwald and Hiroshima, have not weakened Mr. Geiger's pragmatic convictions. He is, if anything, more than ever convinced that humanity must be emancipated from absolutes and educated to a scientific, experimental humanism. After imbibing the darker philosophies of sin, so plentiful during recent years, the reader may find Geiger's instrumentalism stimulating, even though he suspects that his enthusiasm for "scientific method" is the after effect of an earlier drink. This reviewer can only applaud any success in inducing an objective, problem-solving attitude toward personal and political conflicts; but he doubts that Dewey's analysis of reflective thinking is quite adequate for all of the complexities of value questions today.

Mr. Geiger's book is well documented, and it has a good index. The bibliographies direct attention to many excellent books, including some that the teacher as well as the students might overlook. The style is lively; and, although the vocabulary is Dewey's, Geiger produces more quotable sentences than Dewey does.

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BOOKS RECEIVED

ELEMENTS OF SYMBOLIC LOGIC. By HANS REICHENBACH. New York, The Macmillan Company, 1947. Pp. xvi, 444. To be reviewed.

PHILO. Foundations of Religious Philosophy in Judaism, Christianity, and Islam. I, II. (Volume II of *Structure and Growth of Philosophic Systems From Plato to Spinoza.*) By HARRY AUSTRYN WOLFSON. Cambridge, Mass., Harvard University Press, 1947. Pp. xvi, 462; xiv, 531. To be reviewed.

SCIENCE VERSUS IDEALISM. An Examination of "Pure Empiricism" and Modern Logic. By MAURICE CORNFORTH. London, Lawrence & Wishart, 1947. Pp. 267. To be reviewed.

AESTHETIC RELATIVITY. Stanford University Publications, University Series: Language and Literature, VII, 1. By HENRY LANZ. California, Stanford University Press, 1947. Pp. 20. — A "Preface" by the late professor of philosophy and Slavic languages, Stanford University. The conclusion is: "The solution is clear: Beauty is a kind of vision. Vision presupposes an object. Now, object is (by definition) objective. Vision is obviously relative. Both parties are right."

ETHICS FOR TODAY. By HAROLD H. TITUS. 2d ed. New York, American Book Company, 1947. Pp. xii, 569. — A revised version of this well-known textbook.

THE GOODNESS OF BEING IN THOMISTIC PHILOSOPHY AND ITS CONTEMPORARY SIGNIFICANCE. By ENID SMITH. A Dissertation. Washington, D. C., The Catholic University of America Press, 1947. Pp. xiii, 143.

THE PHILOSOPHICAL FRONTIERS OF PHYSICS. By VINCENT EDWARD SMITH. A Dissertation. Washington, D. C., The Catholic University of America Press, 1947. Pp. xii, 210.

PHILOSOPHY: ITS SIGNIFICANCE IN CONTEMPORARY CIVILIZATION. By HIRSCH LAZAAR SILVERMAN. Boston, Bruce Humphries, Inc., 1947. Pp. x, 36.

LA PERSONNE INCARNEE. Etude sur la phénoménologie et la philosophie existentialiste. Par AUGUSTE BRUNNER. Paris, Beauchesne et ses fils, 1947. Pp. 297. To be reviewed.

CONNAISSANCE DU MONDE PHYSIQUE. Par ULYSSE FILIPPI. Préface de LOUIS DE BROGLIE. Sciences d'aujourd'hui. Collection dirigée par ANDRÉ GEORGE. Paris, Editions Albin Michel, 1947. Pp. 342. — A first-rate popular discussion of some of the central notions of modern physics.

NOTES

We have received the first number of a new philosophical journal *Dialectica*, edited by Ferdinand Gonseth, Gaston Bachelard, and Paul Bernays, and published by Presses Universitaires de France, Paris, and Editions du Griffon, Neuchâtel, Suisse. The first issue contains six articles in French and German on the theme "What Is Dialectic?" A philosophical portrait is included in the form of an essay by S. Gagnebin and an interesting report by F. Gonseth on the philosophical conference organized by L'Istituto di studi filosofici in Rome, November, 1946.

ARTICLES IN CURRENT PHILOSOPHICAL PERIODICALS

MIND LVI 223: *K. R. Popper,* New Foundations for Logic; *F. L. Will,* The Contrary-to-Fact Conditional; *P. T. Landsberg,* The Uncertainty Principle as a Problem in Philosophy.

PHILOSOPHY XXII 82: *W. D. Handcock,* What Is Represented in Representative Government?; *T. M. Forsyth,* Aristotle's Concept of God as Final Cause; *W. B. Gallie,* Is *The Prelude* a Philosophical Poem?; *John Hartland-Swann,* Descartes's "Simple Natures"; *W. H. Walsh,* R. G. Collingwood's Philosophy of History; Philosophical Survey: Philosophy in France.

THE JOURNAL OF PHILOSOPHY XLIV 14: *Thomas A. Goudge,* The Conflict of Naturalism and Transcendentalism in Peirce; *Maximilian Beck,* Reason and Existence; *Patrick Mullahy,* Psychiatric and Psychological Contributions to Ethics. 15: *Melvin Rader,* Isolationist and Contextualist Esthetics: Conflict and Resolution; *Irwin Edman,* The Challenge of the Arts to Philosophy. 16: *John Dewey* and *Arthur F. Bentley,* Concerning a Vocabulary for Inquiry into Knowledge; *John L. Roberts,* Human Minds and Physical Objects. 17: *Herbert J. Phillips,* Historical Skepticism.

PHILOSOPHY AND PHENOMENOLOGICAL RESEARCH VII 4: *Karl Duncker* (translated from the German), Phenomenology and Epistemology of Consciousness of Objects; *Abraham Edel,* Coordinates of Criticism in Ethical Theory; *Herbert Spiegelberg,* What Makes Good Things Good? — An Inquiry into the Grounds for Value; *Herbert J. Phillips,* Sanctions and Obligations in Naturalistic Ethics; *Henry Veatch,* A Rejoinder to Professor Lovejoy; *Arthur O. Lovejoy,* Analogy and Contradiction: A Surrejoinder; *Morris E. Opler,* Fact and Fallacy Concerning the Evolution of Man.

THE JOURNAL OF SYMBOLIC LOGIC XII 2: *Andrzej Mostowski,* On Absolute Properties of Relations; *W. V. Quine,* The Problem of Interpreting Modal Logic.

PHILOSOPHY OF SCIENCE XIV 3: *Horace S. Fries,* Science, Causation and Value; *Wilfrid Sellars,* Pure Pragmatics and Epistemology; *Raphael Demos,* Doubts About Empiricism; *David L. Miller,* The Nature of Scientific Statements; *Elgin Williams,* Sociologists and Knowledge; *James B. Klee,* Learning — Acquisition or Selection — Possibility vs. Probability; *Adrian C. Moulyn,* Mechanisms and Mental Phenomena; *Heinz Herrmann,* The Unity of the Morphological and Functional Aspects of Living Matter; *Arthur Lapan,* Incompatibilities and Conflicts: Breakdown.

SCIENCE AND SOCIETY X, 4: *Harlan R. Crippen,* Philippine Agrarian Unrest: Historical Background; *Meyer Reinhold,* Historian of the Classic World: A Critique of Rostovtzeff; *D. D. Kosambi,* The Bourgeoisie Comes of Age in India; *Paul M. Sweezy,* John Maynard Keynes; *I. Trachtenberg,* Soviet Comments on Keynesian Theories of Full Employment. XI, 1: *Samuel Bernstein,* Trends in French Socialism; *George G. Olshausen,* Rich and Poor in Civil Procedure; *René Maublanc,* French Teachers in the Resistance Movement; *Surendra J. Patel,* Marxism and Recent Economic Thought; *M. Baskin,* W. T. Parry on War and Politics; *Giulio Muratore,* Marxist Journals in the Europe of Today; *John K. Jacobs,* The Scientist and Military Research. 2: *Harlan R. Crippen,* American Imperialism and Philippine Independence; *Henri Mougin,* The French Origin of Existentialism; *Margaret Schlauch,* Mechanism and Historical Materialism in Semantic Studies; *Rickard Schneer,* Famine in Bengal, 1943. 3: *Paul Langevin,* Science and Action; *Paul M. Sweezy,* Marxian and Orthodox Economics; *David V. Erdman,* Byron and Revolt in England; *V. J. McGill,* Northrop's *Meeting of East and West; Lewis S. Feuer,* Philosophy and the Theory of Relativity; *Stephen Wellington, Lem Harris,* Soviet Agriculture: A Discussion.

SOCIAL RESEARCH XIV 2: *Richard Schuller,* Foreign Trade Policies of the United States and Soviet Russia; *L. Albert Hahn,* Wage Flexibility Upwards; *Julie Meyer,* Hierarchy and Stratification of the Shop; *Ernst Moritz Manasse,* Max Weber on Race; *Altiero Spinelli,* Dawn or Dusk of Democracy?

THE ANTIOCH REVIEW VII 2: *Leo Gruliow,* It's Strange to be Home; *Warren B. Walsh,* American Attitudes Toward Russia; *William G. Carleton,* Social Politics — A Policy for America; *Alfred A. Skerpan,* Views and Reviews of the Soviet Problems; *Theodora Illenberger,* Final Judgment; *Freeman Champney,* The Justice of the People; *Clinton Oliver,* Henry James as a Social Critic; *T. Swann Harding,* The Magic Porridge Mill; *Paul Bixler,* Freedom Takes Time; *William L. Munger,* Academic Freedom Under Peron; *Lewis Corey,* Toward a Liberal Program for Prosperity and Peace; Ideas for a New Party. A Symposium — III.

THE PERSONALIST XXVIII 3: *The Editor,* "This Thing Called Personalism"; *Francis J. McConnell,* Bowne in American Ethical Progress; *Albert C. Knudson,* Bowne in American Theological Education; *Edgar S. Brightman,* Bowne: Eternalist or Temporalist; *James T. Carlyon,* Bowne in the Classroom; *William A. Huggard,* Whitman's Poem of Personalism; *F. Gerald Ensley,* Personalism as a Form of Explanation; *William van Wyck,* Belles Lettres: 1830–1930.

THOUGHT XXII 86: *Tibor Eckhardt,* The War of the Twentieth Century; *Eugene Bagger,* Liberal Idealism and Absolute Despotism; *Joseph Bluett,* Christian Reunion in a Visible Church; *Walter J. Ong,* Kafka's Castle in the West; *William J. Grace,* The Social Idea in the English Romantic Poets; *Charles A. Brady,* Saint Francis of Aberdeen; *Sister M. Teresa,* A Paradise Remembered; *James I. Conway,* A New History of Philosophy.

THE JOURNAL OF AESTHETICS AND ART CRITICISM V 4: *Thomas Wilfred,* Light and the Artist; *William M. Milliken,* Early Christian and Byzantine Art in America; *George Boas,* The Classification of the Arts and Criticism; *Milton C. Nahm,* The Functions of Art and Fine Art in Communication; *Lewis Zerby,* Philosophy and Literature; *Manuel Olguin,* Social Philosophy and Literature; *Harriet Jeffrey,* Some Problems in the Philosophy of Art Criticism; *Kathi Meyer-Baer,* Nicholas of Cusa on the Meaning of Music; *Theodore M. Greene,* The Problem of Meaning in Music and the Other Arts; *Edward Warder Rannells,* Aesthetic Expression and Learning.

THE REVIEW OF POLITICS IX 3: *Eugene Cardinal Tisserant,* The Holy See and the Byzantine Church and Empire; *Harold Zink,* American Occupation Policies in Germany; *Andrew Gyorgy,* Postwar Hungary; *Robert Strausz-Hupe,* The Western Frontiers of Russia; *Fritz Karl Mann,* The Fiscal Component of Revolution: An Essay in Fiscal Sociology; *John S. Marshall,* Aristotle and the Agrarians; *Hans Rothfels,* Problems of a Bismarck Biography.

THE HIBBERT JOURNAL XLV 4: The late *Alfred Loisy,* The Birth of the Christian Religion; *Ray Knight,* Gospels and Epistles; *J. M. Lloyd Thomas,* The Modernness of Kierkegaard; *M. Jarrett-Kerr,* Gabriel Marcel on Faith and Unbelief; *G. N. M. Tyrrell,* Reason, Inspiration and Telepathy; *Robert Eisler,* Religion for the Age of Reason; *John Nance,* The Scientific Bases for Belief; *Hilda D. Oakeley,* McTaggart's Theory of Immorality; *George Winder,* The New Superstition; *J. W. B. Osborn,* Balance in Policy and Behaviour; *C. M. Beadwell,* Ethics Divine and Human; Survey of Recent Philosophical and Theological Literature.

THE THOMIST X 3: *Thomas E. D. Hennessy,* The Fatherhood of the Priest; *Vincent Edward Smith,* Towards a Philosophy of Physical Instruments; *A. J. McNicholl,* Sacramental Signification.

FRANCISCAN STUDIES VII 2: *Ernest A. Moody,* Ockham, Buridan, and Nicholas of Autrecourt; *Diomede Pohlkamp,* A Franciscan Artist of Kentucky; *Bernward H. Willeke,* Documents Relating to the History of the Franciscan Missions in Shantung, China; *Odoric Hemmerich,* The Franciscan House of Studies in Peking; *James Collins, Rudolf Allers,* Bertrand Russell's *A History of Western Philosophy.*

THE JOURNAL OF RELIGION XXVII 3: *Joachim Wach,* The Place of the History of Religions in the Study of Theology; *Paul Ramsey,* A Theory of Virtue According to the Principles of the Reformation; *Morton S. Enslin,* Puritan of Carthage.

THE NEW SCHOLASTICISM XXI 3: *Charles A. Hart,* Metaphysics of Man's

Nature and Peace; *William R. O'Connor,* Molina and Banez as Interpreters of St. Thomas Aquinas; *R. W. Mulligan,* Morris R. Cohen: His Philosophy of Law; *E. G. Salmon,* Philosophers on World Cooperation; *Sister Rose Emmanuella,* St. Thomas as a Critic.

ANGLICAN THEOLOGICAL REVIEW XXIX 3: *Thomas Barrett,* Athens *versus* Jerusalem: The Relationship Between Art and Religion; *John Culpeper Plott,* Anglican Conscientious Objection; *Samuel M. Shoemaker,* Personal Evangelism (Church Congress Syllabus 47); *George W. Edwards,* The Hand of God in History; *Howard Henry Hassinger,* The Restoration of Hope; *David Hecht* and *George L. Mosse,* Liturgical Uniformity and Absolutism in the Sixteenth Century; *Hillyer H. Straton,* Melito of Sardis, Preacher Extraordinary; *Robert M. Grant,* A Note on Papias; *J. Spencer Kennard, Jr.,* The Lament Over Jerusalem: A Restudy of the Zacharias Passage.

THE AUSTRALASIAN JOURNAL OF PSYCHOLOGY AND PHILOSOPHY XXIV 3: *Sydney Sparkes Orr,* Cambridge Approach to Philosophy (II); *Arthur N. Prior,* Eighteenth Century Writers on Twentieth Century Subjects; *J. C. Maxwell,* Hume's Treatment of Identity.

THE AMERICAN JOURNAL OF PSYCHOLOGY LX 3: *A. Spooner* and *W. N. Kellogg,* The Backward Conditioning Curve; *P. Fertsch,* Hand Dominance in Reading Braille; *H. Guetzkow* and *J. Brozek,* Intellective Tests for Longitudinal Experiments on Adults; *L. Postman* and *R. Page,* Retroactive Inhibition and Psychophysical Judgment; *J. H. Grosslight* and *I. L. Child,* Persistence as a Function of Previous Experience of Failure Followed by Success; *D. G. Paterson* and *M. A. Tinker,* The Effect of Typography upon the Perceptual Span in Reading; *W. O. Jenkins,* The Discrimination and Reproduction of Motor Adjustments with Various Types of Aircraft Controls; *M. E. Bitterman* and *F. L. Marcuse,* Cardiovascular Responses of Innocent Persons to Criminal Interrogation.

JOURNAL OF EXPERIMENTAL PSYCHOLOGY XXXVII 2: *W. N. Kellogg, J. Deese, N. H. Pronko,* and *M. Feinberg,* An Attempt to Condition the Chronic Spinal Dog; *C. L. Hull,* Reactively Heterogeneous Compound Trial-and-Error Learning with Distributed Trials and Terminal Reinforcement; *L. Postman* and *H. L. Kaplan,* Reaction Time as a Measure of Retroactive Inhibition; *W. A. Shaw* and *L. H. Kline,* A Study of Muscle Action Potentials During the Attempted Solution by Children of Problems of Increasing Difficulty; *D. C. McClelland* and *F. S. Apicella,* Reminiscence Following Experimentally Induced Failure; *A. Graybiel, B. Clark,* and *K. MacCorquodale,* The Illusory Perception of Movement Caused by Angular Acceleration and by Centrifugal Force During Flight: I. Methodology and Preliminary Results; *B. R. Philip,* The Relationship of Exposure Time and Accuracy in a Perceptual Task; *O. C. Irwin,* Development of Speech During Infancy: Curve of Phonemic Frequencies; *C. B. Woodbury,* The Meaning of Koch and Daniel's Results for Hull's Theory. 4: *G. J. Wischner,* The Effect of Punishment on Discrimination Learning in a Non-Correction Situation; *E. C. Tolman, B. F. Ritchie,* and *D. Kalish,* Studies in Spatial Learning, V; *W. R. Garner* and *G. A. Miller,* The Masked Threshold of Pure Tones as a Function of Duration; *K. R. Smith,* The Problem of Stimu-

lation Deafness, II; *H. Misiak,* Age and Sex Differences in Critical Flicker Frequency; *W. C. Shipley, Priscilla E. Dattman,* and *Barbara A. Steele,* The Influence of Size on Preferences for Rectangular Proportion in Children and Adults; *W. R. Garner,* Accuracy of Binaural Loudness Matching with Repeated Short Tones; *J. M. Doughty* and *W. R. Garner,* Pitch Characteristics of Short Tones, I.

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